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ABSTRACT

The committee responsible for the present document was appointed to review the pattern of full-time higher education in Great Britain and in view of national needs and resources to advise Her Majesty's Government on what principles its long-term development should be based; e.g., whether there should be any changes in the developmental pattern, whether any new types of institution are desirable, and whether any modifications should be made in the present arrangements for planning and coordinating the development of the various types of institution. Information is presented concerning the growth of higher education in Great Britain, the institutions in Great Britain (with international comparisons), the future demand for higher education, university courses, teachers colleges, technical colleges, the future pattern of higher education, the financial and economic aspects of the proposals submitted, the internal government of institutions of higher education, and academic freedom and its scope. (Author/HS)

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COMMITTEE ON HIGHER EDUCATION

Higher Education

REPORT

*of the Committee appointed by
the Prime Minister
under the Chairmanship of Lord Robbins
1961-63*

*Presented to Parliament by the Prime Minister
by Command of Her Majesty
October 1963*

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CORRECTION

This reprint incorporates the following correction:—

Page 91, Table 33, third column, Final year (1963/64), eighth line,

For 1 read 16.

NOTE: The estimated gross cost of preparing the Report, the five Appendices and the Volumes of Evidence is £128,770, of which £45,000 is the estimated cost of sample surveys and £8,770 is the estimated cost of printing and publication: the latter sum covers the Report and the volumes published with the Report.

MINUTE OF APPOINTMENT

Treasury Minute dated 8th February, 1961

The First Lord states to the Board that he proposes to appoint a Committee to review the pattern of full-time higher education in Great Britain and in the light of national needs and resources to advise Her Majesty's Government on what principles its long-term development should be based. In particular, to advise, in the light of these principles, whether there should be any changes in that pattern, whether any new types of institution are desirable and whether any modifications should be made in the present arrangements for planning and co-ordinating the development of the various types of institution.

The First Lord further proposes that the Committee should be constituted as follows:

Professor Lord Robbins, C.B. (Chairman)

Sir David Anderson

Dame Kitty Anderson, D.B.E.

Mr. A. Chenevix-Trench

Professor J. Drever

Mr. H. L. Elvin

Miss H. L. Gardner*

Sir Edward Herbert, O.B.E.

Sir Patrick Linstead, C.B.E., F.R.S.

Sir Philip Morris, K.C.M.G., C.B.E.

Mr. H. C. Shearman

Mr. R. B. Southall, C.B.E.

With Mr. P. S. Ross of the Treasury as Secretary.

My Lords concur.

Note :

Sir Edward Herbert died on 28th April, 1963.

* Miss Gardner was appointed a Commander of the Most Excellent Order of the British Empire in January, 1962.

NOTE

The following symbols are used in tables in the Report and Appendices where appropriate:

- . not applicable.
- . . not available.
- nil or negligible.

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CHAPTER I

Our terms of reference, our procedure and the outline of our Report

1. We were appointed by Treasury minute dated 8th February, 1961: 'to review the pattern of full-time higher education in Great Britain and in the light of national needs and resources to advise Her Majesty's Government on what principles its long-term development should be based. In particular, to advise, in the light of these principles, whether there should be any changes in that pattern, whether any new types of institution are desirable and whether any modifications should be made in the present arrangements for planning and co-ordinating the development of the various types of institution'.

We now have the honour to submit our Report.

2. We have held 111 meetings. We have received over 400 written submissions of evidence from people or organisations. We began by holding informal discussions with government departments and with a number of people in a position to give us general advice. By the time these discussions were completed we had received enough written evidence to enable us to arrange for formal interviews. We subsequently interviewed formally representatives of ninety organisations and thirty-one individual witnesses, and we have had further informal interviews with many other people. Most of our meetings have taken place in London. But we have held sittings in Cardiff and Edinburgh to hear evidence especially relevant to Welsh or Scottish problems. We have made a number of visits to universities, Colleges of Advanced Technology, technical colleges and training colleges in Great Britain. We have also paid short visits to France, the Federal German Republic, the Netherlands, Sweden and Switzerland and longer visits to the United States and the Soviet Union.

3. Our terms of reference cover a wide field and would justify investigation of almost any circumstances relevant to the future of higher education. But in preparing both our analysis and our recommendations we have tried to concentrate on leading aspects and leading problems. We have taken it that this is what we were appointed to do; and we were anxious to report as soon as possible. Important decisions about higher education will be called for in the immediate future and we wished our views to be available to those who will have the responsibility for taking them.

4. There are therefore many questions with which we have not dealt, notably questions specifically related to particular fields of study, and we apologise to those who submitted evidence on such matters. If our recommendations are accepted, it should in future be possible to deal no less effectively with detailed than with general topics.

Chapter I

5. Records of the oral evidence we took, the written evidence on which our discussions were based and a number of other memoranda are to be published. Arrangements are being made for most of the rest of the written evidence we received to be available for public inspection.*

6. In the main we have concentrated on the universities in Great Britain and those colleges, within the purview of the Ministry of Education and the Scottish Education Department, that provide courses for the education and training of teachers or systematic courses of further education beyond the Advanced level of the General Certificate of Education† or beyond the Ordinary National Certificate or its equivalent.

7. In further education the above definition embraces, in addition to the Colleges of Advanced Technology, the advanced work undertaken at a great number of technical and commercial colleges and schools of art; but it excludes the initial stages of much professional and other education provided in such colleges. We have something to say about the Agricultural Colleges and about full-time courses of adult education, since at certain points their development is related to our central theme. Since our terms of reference are limited to full-time education, they exclude the large number of students who study by part-time or correspondence courses. But we have found it necessary both to refer to the present state of part-time higher education and to take into account its possible role in the future, because of the contribution it makes to the stock of qualified manpower and because estimates of the provision required for full-time courses must include some assumptions about the future of part-time study.

8. In general we do not deal with the work of the independent colleges of theology, music, art and architecture or of the many secretarial colleges. Nor do we make recommendations about the colleges provided by the armed services. But statistics that include such of the work of this group of institutions as falls within our definition will be found in Appendix Two, and they are briefly mentioned in Chapter III.

9. We received evidence about training for nursing and some of the occupations associated with medicine. Since this does not form part of higher education as we have defined it, we have not specifically considered this wide area of opportunity for girls. But we are aware that at certain points contacts with universities and colleges are now being established.

10. Our Report is arranged as follows. We first set out the principles which have guided our investigations. We then describe the present structure of higher education in this country, and make comparisons with some other countries. We go on to investigate the probable demand for higher education

* In the following places:

The Public Record Office, London
The Scottish Record Office, Edinburgh
The National Library of Wales, Aberystwyth
The University of Bristol
The University of Manchester
The London School of Economics

† In Scotland, beyond the higher grade of the Scottish Certificate of Education.

Terms of reference, procedure and outline of Report

in Great Britain up to 1980 and the extent to which it should be met. An examination of the relationship between higher education and the schools is followed by a group of chapters in which we consider the work of the various existing institutions of higher education, and then suggest a pattern for the future. We then deal with problems of staffing, teaching and finance, and go on to consider problems of the internal government of institutions of higher education, academic freedom and the machinery of government. There follows a chapter on immediate problems before we finally summarise our conclusions. We should like to emphasise that, while we believe that our separate recommendations are each justified in themselves, they are nevertheless intimately inter-related: much of what we say can be judged only in the light of the Report as a whole.

11. The main argument of the Report has deliberately been confined to the bare minimum of description and statistics essential to the formulation of policy. The five Appendices, comprising six volumes, give the facts and figures on which many of our appraisals and recommendations are based. They contain, however, much more than this. When we first approached our task, we were at once struck by the paucity of information on higher education in general. We therefore initiated a number of surveys and statistical inquiries. In this way there has been gathered together a mass of material which, apart from its relevance to the Report, must be regarded as valuable in its own right. We hope indeed that the information here assembled will serve as the foundation for further observation and analysis and the regular presentation of the relevant statistical series—functions which, as we point out in Chapter XVII, are indispensable to the formulation of future policy. We would like to express our gratitude to the statisticians and others in the government departments concerned, including the Central Statistical Office, who have given generously of their time and knowledge to co-operation in this enterprise, and to our statistical adviser, Professor C. A. Moser, without whose dedicated labours it could not have been conceived, let alone brought to fruition.

12. The Annex printed at the end of this volume contains lists of the memoranda submitted to us and of the witnesses who gave oral evidence. It gives an account of the procedure we followed in hearing evidence and in our visits abroad, and describes the statistical and other inquiries which we initiated. It is followed by a glossary of the terms used in our Report and in the Appendices.

CHAPTER II

Aims and principles

13. Our terms of reference instruct us to consider the pattern of full-time higher education in Great Britain. We believe that no such instructions have been given to any committee or commission in the past. There have been Royal Commissions on the affairs of particular universities and committees on various aspects of technical education and the training of teachers. There has never been a comprehensive survey of the field of higher education in the sense in which we have decided to use that term.

14. The reason is obvious. Even today it would be a misnomer to speak of a system of higher education in this country, if by system is meant a consciously co-ordinated organisation. The various institutions—the universities, the technical, commercial and art colleges, the colleges for the education and training of teachers—have grown up separately. Moreover, for the greater part of their history, the universities, which were more or less independent of the state, dominated the landscape. Only in the nineteenth century and, on a perceptible scale, only in the latter part of that century did other institutions begin to arise; and even then, although work for a London external degree was done, and often done very well, in some technical colleges, the emphasis was chiefly on part-time study. Therefore, although it can be argued that national needs demanded a more comprehensive survey at an earlier date, it is easy to see why this did not take place.

15. In recent years, however, important changes have occurred both within higher education and in the nation at large. Within higher education two sets of changes are especially remarkable. First, the financial position of the universities has changed. Although some universities have still substantial sources of independent income, all depend on large grants from the state to enable them to carry out their present functions. Great pains have been taken to see that this position of financial dependence should not impair their legitimate rights of self-government. But it is only natural that the general direction of their development has come to be regarded as a matter of public interest. Secondly, developments have taken place elsewhere. Much of the work done in certain technical colleges and colleges for the education and training of teachers has risen to university or near university level. The establishment of the Colleges of Advanced Technology and the lengthening of the course in the Training Colleges, combined with rising standards of entry, mean that universities are no longer the sole providers of full-time higher education at degree level.

16. During the same period, outside the field of higher education, there have been changes in the community and its position in the world at large. The extension of educational opportunity in the schools and the widening

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of the desire for higher education on the part of young people have greatly increased the demand for places. At the same time the growing realisation of this country's economic dependence upon the education of its population has led to much questioning of the adequacy of present arrangements. Unless higher education is speedily reformed, it is argued, there is little hope of this densely populated island maintaining an adequate position in the fiercely competitive world of the future.

17. Thus it has come about that, seventeen years after the passing of the great Education Act of 1944, which inaugurated momentous changes in the organisation of education in the schools, we have been asked to consider whether changes of a like order of magnitude are needed at a higher level.

A SYSTEM OF HIGHER EDUCATION

18. The fundamental question that we have to answer is whether a system of higher education in the sense in which we have used the word 'system' is desirable. As we have said, it is misleading to speak as if there were already a system in this sense. Higher education has not been planned as a whole or developed within a framework consciously devised to promote harmonious evolution. What system there is has come about as the result of a series of particular initiatives, concerned with particular needs and particular situations, and there is no way of dealing conveniently with all the problems common to higher education as a whole.

19. There are many types of social activity where the absence of co-ordinating mechanism other than the framework of the law is not a disadvantage. The absence of a plan for everything is not necessarily an indication of chaos. But higher education is so obviously and rightly of great public concern, and so large a proportion of its finance is provided in one way or another from the public purse, that it is difficult to defend the continued absence of co-ordinating principles and of a general conception of objectives. However well the country may have been served by the largely unco-ordinated activities and initiatives of the past, we are clear that from now on these are not good enough. In what follows therefore we proceed throughout on the assumption that the needs of the present and still more of the future demand that there should be a system.

20. In giving this answer to our fundamental question we must guard against a possible misunderstanding. In recommending that there should be a system and co-ordination we are not demanding that all the activities concerned should be planned and controlled from the centre. We set great value upon the freedom of individuals and institutions in any academic system. But this does not conflict with our view that, where there is common provision, there should be co-ordinating principles; and that individual initiative must not result in mutual frustration. Our point is that the central decisions that have to be made should be coherent and take account of the interests of all sectors of higher education, and that decentralised initiative—and we hope there will always be much of this—should be inspired by common principles.

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21. Before proceeding, then, to detailed discussion we think it appropriate to outline our conceptions of the aims of higher education and to state the principles that we believe should inspire its organisation.

THE AIMS OF HIGHER EDUCATION

22. To begin with aims and objectives—what purposes, what general social ends should be served by higher education?

23. The question is not a new one; and the answers have been many and various. But of one thing we may be reasonably certain: no simple formula, no answer in terms of any single end, will suffice. There is no single aim which, if pursued to the exclusion of all others, would not leave out essential elements. Eclecticism in this sphere is not something to be despised: it is imposed by the circumstances of the case. To do justice to the complexity of things, it is necessary to acknowledge a plurality of aims.

24. In our submission there are at least four objectives essential to any properly balanced system.

25. We begin with instruction in skills suitable to play a part in the general division of labour. We put this first, not because we regard it as the most important, but because we think that it is sometimes ignored or undervalued. Confucius said in the *Analects* that it was not easy to find a man who had studied for three years without aiming at pay. We deceive ourselves if we claim that more than a small fraction of students in institutions of higher education would be where they are if there were no significance for their future careers in what they hear and read; and it is a mistake to suppose that there is anything discreditable in this. Certainly this was not the attitude of the past: the ancient universities of Europe were founded to promote the training of the clergy, doctors and lawyers; and though at times there may have been many who attended for the pursuit of pure knowledge or of pleasure, they must surely have been a minority. And it must be recognised that in our own times, progress—and particularly the maintenance of a competitive position—depends to a much greater extent than ever before on skills demanding special training. A good general education, valuable though it may be, is frequently less than we need to solve many of our most pressing problems.

26. But, secondly, while emphasising that there is no betrayal of values when institutions of higher education teach what will be of some practical use, we must postulate that what is taught should be taught in such a way as to promote the general powers of the mind. The aim should be to produce not mere specialists but rather cultivated men and women. And it is the distinguishing characteristic of a healthy higher education that, even where it is concerned with practical techniques, it imparts them on a plane of generality that makes possible their application to many problems—to find the one in the many, the general characteristic in the collection of particulars. It is this that the world of affairs demands of the world of learning. And it is this, and not conformity with traditional categories,

that furnishes the criterion of what institutions of higher education may properly teach.

27. Thirdly, we must name the advancement of learning. There are controversial issues here concerning the balance between teaching and research in the various institutions of higher education and the distribution of research between these institutions and other bodies. We shall deal with these later. But the search for truth is an essential function of institutions of higher education and the process of education is itself most vital when it partakes of the nature of discovery. It would be untrue to suggest that the advancement of knowledge has been or ever will be wholly dependent on universities and other institutions of higher education. But the world, not higher education alone, will suffer if ever they cease to regard it as one of their main functions.

28. Finally there is a function that is more difficult to describe concisely, but that is none the less fundamental: the transmission of a common culture and common standards of citizenship. By this we do not mean the forcing of all individuality into a common mould: that would be the negation of higher education as we conceive it. But we believe that it is a proper function of higher education, as of education in schools, to provide in partnership with the family that background of culture and social habit upon which a healthy society depends. This function, important at all times, is perhaps especially important in an age that has set for itself the ideal of equality of opportunity. It is not merely by providing places for students from all classes that this ideal will be achieved, but also by providing, in the atmosphere of the institutions in which the students live and work, influences that in some measure compensate for any inequalities of home background. These influences are not limited to the student population. Universities and colleges have an important role to play in the general cultural life of the communities in which they are situated.

29. Institutions of higher education vary both in their functions and in the way in which they discharge them. The vocational emphasis will be more apparent in some than in others. The advancement of learning will be more prominent at the postgraduate than at the undergraduate stage. The extent of participation in the life and culture of the community will depend upon local circumstances. Our contention is that, although the extent to which each principle is realised in the various types of institution will vary, yet, ideally, there is room for at least a speck of each in all. The system as a whole must be judged deficient unless it provides adequately for all of them.

GUIDING PRINCIPLES

30. We conclude this chapter by indicating in broad outline some of the main principles that we have taken as guides in conducting our enquiries and in framing our recommendations.

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Numbers and eligibility

31. Throughout our Report we have assumed as an axiom that courses of higher education should be available for all those who are qualified by ability and attainment to pursue them and who wish to do so. What type of education they should get and in what kind of institution are questions we consider later on ; and the criterion by which capacity is to be judged is clearly a question on which there may be a variety of opinions. But on the general principle as we have stated it we hope there will be little dispute.

32. If challenged, however, we would vindicate it on two grounds. First, conceiving education as a means, we do not believe that modern societies can achieve their aims of economic growth and higher cultural standards without making the most of the talents of their citizens. This is obviously necessary if we are to compete with other highly developed countries in an era of rapid technological and social advance. But, even if there were not the spur of international standards, it would still be true that to realise the aspirations of a modern community as regards both wealth and culture a fully educated population is necessary.

33. But beyond that, education ministers intimately to ultimate ends, in developing man's capacity to understand, to contemplate and to create. And it is a characteristic of the aspirations of this age to feel that, where there is capacity to pursue such activities, there that capacity should be fostered. The good society desires equality of opportunity for its citizens to become not merely good producers but also good men and women.

The recognition of individual achievement

34. Secondly we have assumed throughout the principle of equal academic awards for equal performance. We think that in any properly co-ordinated system of higher education the academic grading of individuals should depend upon their academic accomplishment rather than upon the status of the institution in which they have studied. We are well aware that there are limits to the realisation of this principle, and that the status accorded by the world to a degree from an institution of long standing and established reputation may well be higher than the status of a degree earned in an examination of comparable severity in an institution of more recent foundation. This is in the nature of things. But it is no argument for retaining formal differences in terminology that do not reflect real differences in attainment.

The status of institutions

35. We wish to see the removal of any designations or limitations that cause differentiation between institutions that are performing similar functions. Distinctions based on adventitious grounds, whether historical or social, are wholly alien to the spirit that should inform higher education.

36. It must, however, be recognised that within the wide field of higher education there is a need for a variety of institutions whose functions differ. There must, therefore, be distinctions between institutions which, though they

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are all engaged in higher education, have differing functions and a different emphasis. Our concern is that such distinctions should be genuine, based on the nature of the work done and the organisation appropriate to it, and that nobody should think that in recognising the existence of such distinctions by function we are implying that one kind of institution is more important and valuable to the nation than another. All are needed to provide appropriate educational opportunities and to supply national needs.

37. Furthermore it must be recognised that within these various categories it is inevitable that some institutions will be more eminent than others. It is in the nature of things that talent should attract talent and that where famous intellectual exploits take place, there should develop some concentration of staff and students especially interested in the subjects concerned. Moreover, such concentrations are not only probable but also desirable. A mutual stimulation of speculation and of scholarly standards is a precondition of much that is most valuable in higher education. It is therefore unavoidable that in this respect there should be some differences in achievement and reputation as between institutions. It is also unavoidable that because of the varying expense of different kinds of education and research different institutions should receive different subventions. What is important is that what differences there are should rest clearly on differences of function on the one hand, and on acknowledged excellence in the discharge of functions on the other. There should be no freezing of institutions into established hierarchies; on the contrary there should be recognition and encouragement of excellence wherever it exists and wherever it appears.

Opportunities for transfer

38. If it is true that certain differences of level and function must be expected to persist among institutions, it is also true that such a structure can only be morally acceptable if there are opportunities for the transfer of a student from one institution to another when this is appropriate to his or her intellectual attainments and educational needs. We attach great importance to this.

Organisation

39. The organisation of higher education must allow for free development of institutions. Existing institutions must be free to experiment without predetermined limitations, except those necessary to safeguard their essential functions; and there must be freedom to experiment with new types of institution if experience shows the desirability of such experiments. Our fundamental postulate of the necessity for system and order is not to be in any way construed as conflicting with this. We ask indeed that there should be co-ordination, some principles of policy commonly accepted, some organisation providing for rational allocation of scarce resources. But we should hold it to be the very bankruptcy of constitutional invention if such conditions were thought to be incompatible with that scope for individual and institutional initiative that British tradition has always held to be one of the main essentials of intellectual and spiritual health.

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The maintenance of standards

40. Finally, we must demand of a system that it produces as much high excellence as possible. It must therefore be so devised that it safeguards standards. We began our discussion of principles by emphasising the claims of numbers. It is only fitting, therefore, that we should close it by emphasising the claims of achievement and quality. The two ends are not incompatible. Equality of opportunity for all need not mean imposing limitations on some. To limit the progress of the best is inevitably to lower the standard of the average. A sound educational system should afford full scope for all types of talent at all levels. In the past our universities have tended to set the tone and the pace for other institutions and it is probable that in the future they will have a similar role to play. We are proud to think that they have proved themselves well capable of comparison over the years with those of other countries in fostering intellectual excellence. We hope that this reputation will be sustained and that, while they broaden the basis of education for first degrees, they will also achieve even higher standards in the education of those who show themselves capable of advancing beyond this stage.

CHAPTER III

The growth of higher education in Great Britain

THE EDUCATIONAL REVOLUTION

41. The last hundred years have been marked by successive phases in which the opportunity for education has been expanded, first at primary, then at secondary and now at the level of higher education. First came the Forster Act of 1870 and the corresponding Scottish measure of 1872 which paved the way for free and universal elementary education. By the end of the century most children in Great Britain remained at school until they were at least twelve. There followed a great upsurge in the demand for secondary education. The Welsh Intermediate Education Act of 1889, the Scottish Act of 1892 and the Education Act of 1902 helped the drive to a great expansion of grammar schools and their Scottish counterparts in the first half of this century. Although in the 1930's the later stages of elementary education began to be reorganised in separate schools, it was not until the Education Acts of 1944 and 1945 that the foundation was laid for a system of secondary schools for all children. As a result of these Acts, the school leaving age was raised to fifteen and free secondary education of all types was made available to all.

42. The improved opportunities for secondary schooling are largely responsible for the enormous growth in senior forms since the war. Table 1 shows that in 1938 only about 4 per cent. of children aged seventeen in Great Britain were at school; in 1962 the proportion was 12 per cent. and in addition nearly 3 per cent. were receiving full-time education at

TABLE 1

The percentage of young people of various ages receiving full-time education
Great Britain 1870-1962

				Percentage			
				1870	1902	1938	1962
10-year-olds	...	...	...	40	100	100	100
14-year-olds	...	...	...	2	9	38	100
17-year-olds	...	...	...	1	2	4	15
19-year-olds	...	...	...	1	1	2	7

Source: 1870-1938: See Appendix One, Annex EE
1962: See Appendix Two (A), Introduction

- Notes: 1. The figures take no account of children of compulsory school age to whom the laws of school attendance did not apply.
2. Figures relate to January. Those for 1870, 1902 and 1938 are approximate.

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that age in technical colleges, which have also been transformed in character. These changes, reinforced by the steady rise in national prosperity, are now making their impact on the demand for higher education. In 1938 only about 3 per cent. of those aged nineteen were receiving full-time education; in 1962 the proportion was 7 per cent., nearly all of them in higher education.

43. This expansion has not been accompanied by any lowering of standards, but rather the reverse. For example, Table 2 shows that the percentage of the age group* achieving minimum university entrance qualifications has risen by over a half since 1954, whereas the percentage entering university has risen only by a quarter, and has actually fallen since 1959. In the last few years, in other words, university expansion has not even quite kept pace with the increase in the age group, let alone the increase in the number of those with the minimum qualifications for entrance (see paragraph 51). We discuss in more detail in Chapter VI and in Appendix One the impact of increases of this kind on the demand for higher education in the future.

TABLE 2
Percentages of the age group obtaining minimum university entrance qualifications, and entering university
Great Britain 1954-1962

				Percentage		
				Those obtaining university entrance qualifications as percentage of the age group	University entrants as percentage of the age group	University entrants as percentage of those with university entrance qualifications
1954	...	...	...	4.3	3.2	73
1955	...	...	...	4.5	3.4	74
1956	...	...	...	4.8	3.5	74
1957	...	...	...	5.3	3.9	75
1958	...	...	...	5.7	4.1	72
1959	...	...	...	6.1	4.2	66
1960	...	...	...	6.6	4.1	62
1961	...	...	...	6.9	4.1	61
1962	...	...	...	..	4.0	..

Source: See Appendix One, Part IV, Tables 10, 12, 14 and 33

- Notes: 1. Minimum university entrance qualifications are set out in paragraph 51.
2. For the different age groups used in computing the first and second columns respectively see Appendix One, Annex B.

* The concept of 'the percentage of the age group' is best illustrated by reference to those entering higher education. The entrants in any year are of various ages. Those of each age entering are expressed as a percentage of their own age group, and these separate percentages are then summed. This gives a percentage of a composite age group, suitably weighted to allow for the numbers of each age entering and the size of the age groups from which they come. Where the data did not permit this type of calculation, an approximation has been used: all entrants have been expressed as a percentage of the single age group from which the largest number of entrants was thought to be drawn.

THE PATTERN OF HIGHER EDUCATION

44. There are three sectors of higher education with which we are mainly concerned.* They are: universities; Training Colleges and Scottish Colleges of Education; and further education in those institutions for which the Ministry of Education and the Scottish Education Department have a general responsibility, namely Colleges of Advanced Technology, technical colleges of various kinds, Colleges of Commerce and Schools of Art and the Scottish Central Institutions. The work here is of differing levels: we shall only be concerned with that which comes within the scope of paragraph 6 of Chapter I and is defined as 'advanced'. More details of all the topics discussed in this chapter will be found in Appendices One and Two.

Full-time provision

45. At the turn of the century nearly all full-time higher education was provided by universities. The courses then given in Training Colleges and Colleges of Education involved only two years of study and the standard of instruction was correspondingly restricted. These colleges have grown substantially in stature in recent years, both because of rising standards of entry and, in England and Wales, because of the introduction of the three year course in 1960. The stature of some colleges engaged in further education has also grown dramatically in recent years. It will be seen from Table 3 that, while the number of university students has slightly more than doubled since the war, the number in Training Colleges and Colleges of Education has increased just over fourfold. But, striking as these changes have been, the most marked increase has been in the numbers taking full-time† advanced courses in further education. This work was negligible sixty years ago, but today a fifth of all full-time students are in these colleges. Table 3 and Chart A show that in 1962/3 there were 118,000 students in universities, 55,000 in Training Colleges and Colleges of Education and 43,000 taking full-time advanced courses in further education. Chart A also shows details of the institutions within each of these three sectors, which we discuss in Chapter IV.

Part-time provision

46. Most part-time higher education is provided in institutions of further education.‡ In 1962/3 there were 54,000 advanced students attending these institutions for at least one day a week (compared with 29,000 in 1954/5): most of them were released by their employers for the purpose.

* The systems of higher education in England and Wales rest on the same foundations and we generally deal with the two countries together to facilitate comparison and contrast with Scotland, where the system is different.

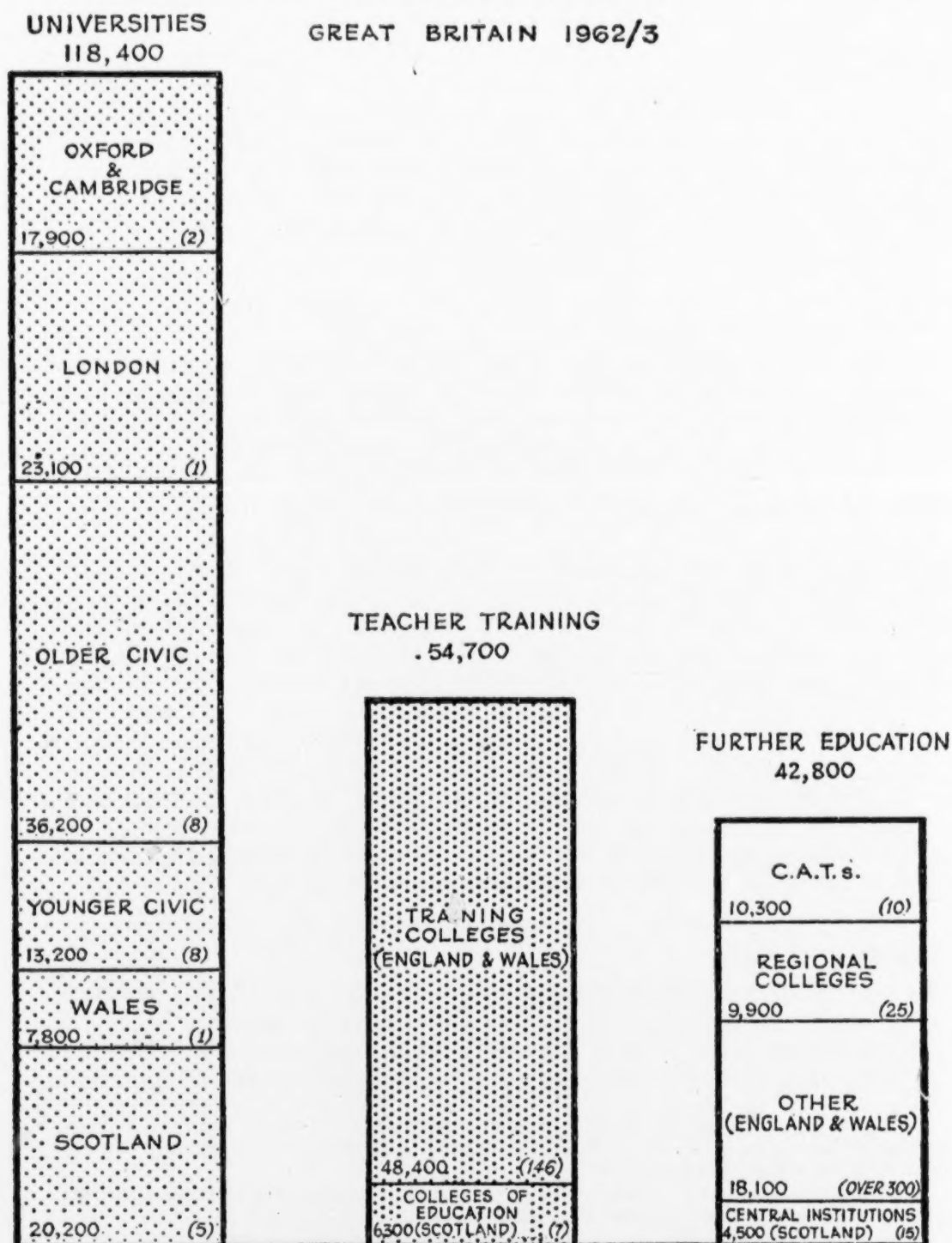
† In full-time courses we include sandwich courses, in which periods of study in college alternate with one or more periods of industrial training.

‡ There are some 30,000 students outside these institutions taking courses of private study, mostly by correspondence, leading to various professional qualifications. Details will be found in Appendix Two (B), Part V.

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CHART A

FULL TIME STUDENTS IN INSTITUTIONS
OF HIGHER EDUCATION



Source: See Appendix Two (A), Parts I, II and III

- Notes: 1. The figures in brackets show the number of institutions in each category.
2. Sussex (Brighton) is included with the 'younger civic' universities. No other 'new' university had students in 1962/3.

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Another 54,000 advanced students attended only in the evening. In the universities, the number of part-time students was 9,000 (over two thirds of them at postgraduate level) compared with 6,000 before the war. Hardly any part-time work is done in the Training Colleges and Colleges of Education.

TABLE 3
Students in full-time higher education
Great Britain 1900/1-1962/3

				Number			
				University	Teacher training	Further education	All full-time higher education
1900/01	...	...		20,000	5,000	—	25,000
1924/25	...	...		42,000	16,000	3,000	61,000
1938/39	...	...		50,000	13,000	6,000	69,000
1954/55	...	...		82,000	28,000	12,000	122,000
1962/63	...	...		118,000	55,000	43,000	216,000

Source: 1900/01-1938/39: See Appendix One, Annex EE
1954/55-1962/63: See Appendix One, Part IV, Table 46

- Notes: 1. Figures for further education in 1924/25 and 1938/39 are approximate.
2. The table does not include full-time advanced students in the colleges of music and other colleges mentioned in paragraph 8 of Chapter I.
3. Part of the large increase in teacher training between 1954/55 and 1962/63 was due to the lengthening of the Training College course in England and Wales.

Overseas students

47. The figures that we have given so far in this section include overseas as well as home students.* In 1961/2 overseas students accounted for 10 per cent. of all full-time students in higher education in this country. In universities they represented 7 per cent. of the undergraduates and 32 per cent. of the postgraduate students; in further education 15 per cent. were from overseas and in Training Colleges and Colleges of Education under 2 per cent. Some 60 per cent. of overseas students come from Commonwealth countries.†

Numbers entering courses of full-time and part-time study

48. Table 4 shows the percentages of the age group who have entered each sector of full-time higher education (excluding colleges of music and the other colleges mentioned in paragraph 8 of Chapter I) in the recent and more distant past.

* By home students we mean students ordinarily resident in the United Kingdom apart from their period as students.

† Detailed statistics on overseas students will be found in Appendix Two (A), Part VII.

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TABLE 4
Percentage of the age group entering full-time higher education
Great Britain 1900-1962

				Percentage			
				University	Teacher training	Further education	All full-time higher education
1900 ...	...	...	...	0.8	0.4	—	1.2
1924 ...	...	...	...	1.5	1.0	0.2	2.7
1938 ...	...	...	...	1.7	0.7	0.3	2.7
1954 ...	...	...	...	3.2	2.0	0.6	5.8
1955 ...	...	...	...	3.4	2.0	0.7	6.1
1956 ...	...	...	...	3.5	2.1	0.8	6.4
1957 ...	...	...	...	3.9	2.2	0.9	7.0
1958 ...	...	...	...	4.1	2.4	1.2	7.7
1959 ...	...	...	...	4.2	2.8	1.3	8.3
1960 ...	...	...	...	4.1	2.7	1.5	8.3
1961 ...	...	...	...	4.1	2.5	1.7	8.3
1962 ...	...	...	...	4.0	2.5	2.0	8.5

Source: 1900-1938: See Appendix One, Annex EE
1954-1962: See Appendix One, Part IV, Table 33

Note: Figures for further education in 1924 and 1938 are approximate.

TABLE 5
Percentage of the age group entering higher education
Great Britain 1962

				Percentage		
				Men	Women	Men and women
Full-time:						
University ...	...	...	...	5.6	2.5	4.0
Teacher training ...	...	...	...	1.3	3.8	2.5
Further education ...	...	...	...	2.9	1.0	2.0
All full-time ...	...	...	...	9.8	7.3	8.5
Part-time further education:						
Day ...	...	...	...	6.1	0.4	3.2
Evening ...	...	...	...	4.4	0.2	2.3
Private study ...	...	...	...	2.1	—	1.1
All higher education ...	...	...	...	22.4	7.9	15.1

Source: See Appendix One, Part IV, Table 33 and (for private study) Part I, Table 26

Note: In addition, approximately 0.3 per cent. of the age group entered full-time advanced courses in colleges of music and the like.

The growth of higher education

49. Table 5 shows the position in 1962 in more detail; it gives separate figures for men and women and covers part-time as well as full-time higher education. In 1962, 8.5 per cent. of the age group entered full-time higher education: 4.0 per cent. went to universities, 2.5 per cent. into Training Colleges and Colleges of Education and 2.0 per cent. into further education. If part-time higher education and private study are included, the figure was 15.1 per cent.

Women in higher education

50. Table 5 shows that, in the case of women, only 7.3 per cent. of the age group entered all full-time higher education in 1962, compared with 9.8 per cent. in the case of men; if part-time education is included, the comparison is between just under 8 per cent. for women and over 22 per cent. for men.* The difference is substantial, and we shall be discussing various aspects of the place of women in higher education in later chapters. But the important point is that the difference between the sexes shown in Table 5 has its origin long before the age of entry to higher education. Although nearly as many girls as boys pass the General Certificate of Education at Ordinary level, many fewer stay on beyond this stage to take Advanced level. Of those who do stay on and obtain passes in the Advanced level of the General Certificate of Education, the proportion going into full-time higher education is as high for girls as for boys†. But here again there is a difference in pattern. In 1962/3, a quarter of the students in British universities were women; in Training Colleges in England and Wales two thirds of the students were women.

Qualifications of entrants

51. It may be useful at this point to summarise the educational qualifications of the students who enter each sector: the details are given in Tables 6 and 7 and, for England and Wales, in Chart B. Two passes at the Advanced level of the General Certificate of Education are the minimum qualification for entry to universities in England and Wales; at present over 80 per cent. of the students have at least three. The minimum demanded for entry to Training Colleges is five passes at Ordinary level, but standards have risen sharply in recent years and 60 per cent. of those who now enter have at least one pass at Advanced level and over a third have two passes or more.‡ In further education virtually all the students have either one or more passes at Advanced level or an Ordinary National Certificate or Diploma, which are roughly equivalent to Advanced level.

* In addition, of course, many girls train for nursing, the medical auxiliary occupations, secretarial work and the like.

† The detailed analysis underlying these statements is given in Appendix One, Part I, Sections 1 and 3.

‡ On average the marks obtained by those Training College entrants who achieve a given number of passes at the Advanced level are lower than those obtained by university entrants. A fuller account of the qualifications of entrants to different institutions of higher education will be found in Appendix Two (B), Part I.

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TABLE 6
Qualifications of entrants to each sector of higher education
Entrants from England and Wales 1961

	G.C.E. 'A' levels			Ordinary National Certificate or Diploma	Other qualifications (including 'O' level)	All entrants	Numbers (=100%)
	3 or more	2	1				
Full-time							
University ...	83	13	1	—	3	100	25,500
Teacher training	14	24	23	—	39	100	16,300
Further education							
C.A.T.s* ...	34	27	14	22	3	100	2,700
Other ...	11	17	21	37	14	100	7,600
Part-time further education							
Day ...	2	9	9	78	2	100	17,200
Evening ...	1	6	6	87		100	11,800

Source: See Appendix One, Part I, Tables 11 and 12

Notes: *1. Colleges of Advanced Technology are shown as C.A.T.s.
2. The distinction between entrants from England and Wales shown in this table and entrants from Scotland, shown in Table 7, is in terms of the country where students are normally resident.

TABLE 7
Qualifications of entrants to each sector of higher education
Entrants from Scotland 1961

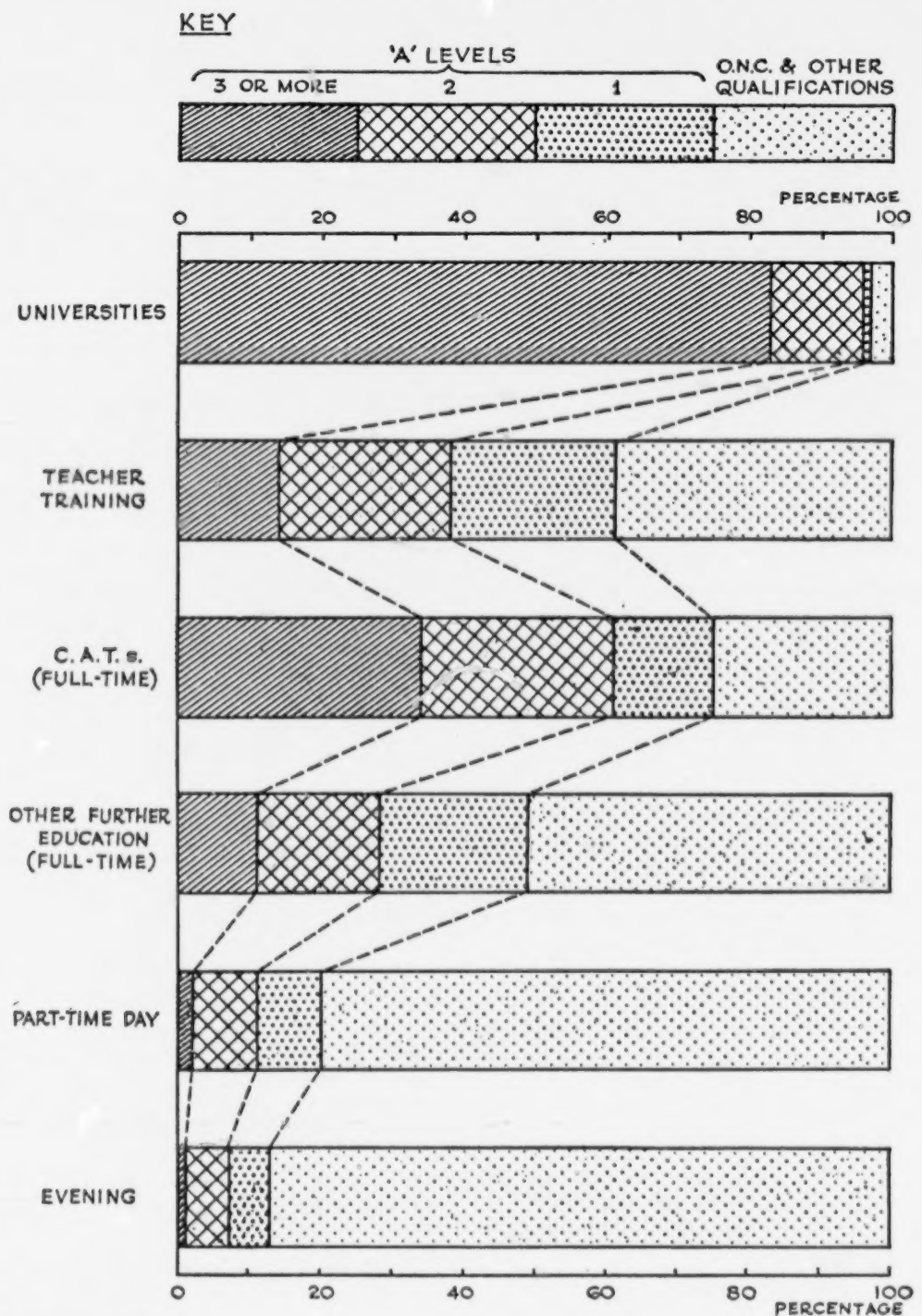
	Scottish Leaving Certificate		Other qualifications	All entrants	Numbers (=100%)
	At least 3 Highers and 2 Lowers (1)	At least 2 Highers and 3 Lowers, but less than in Col. (1) (2)			
Full-time					
University ...	83	9	8	100	3,800
Teacher training ...	42	41	17	100	1,600
Further education ...	35	10	55	100	1,700
Part-time further education					
Day ...	20	5	75	100	1,100
Evening ...	10	5	85	100	900

Source: See Appendix One, Part I, Table 21

The growth of higher education

CHART B

QUALIFICATIONS OF ENTRANTS
TO EACH SECTOR OF HIGHER EDUCATION
ENGLAND AND WALES 1961



Source : Table 6

Chapter III

or a pass at intermediate level in an examination of one of the numerous professional bodies. In Scotland, university entrants have been required to have at least three passes at the Higher grade of the Scottish Leaving Certificate* and two passes at the Lower grade. For those going to Colleges of Education the requirement has been at least two passes at the Higher grade and three at the Lower, but in fact nearly half have the minimum qualifications for university entrance. As in England and Wales, there is a variety of entrance requirements to courses of further education.

Numbers completing courses of full-time and part-time study

52. In order to show the annual contribution made by the different sectors of higher education to the country's stock of qualified manpower, we discount all those who begin courses but do not successfully complete them. This is commonly described as 'wastage'—a term that we adopt for reasons of conformity but that we regard as carrying misleading implications. Wastage rates in higher education have not varied much in recent years. Both in Training Colleges and Colleges of Education wastage is about 7 per cent. In universities it has for some years been about 14 per cent., though there are wide variations between universities and faculties: wastage is lowest

TABLE 8
Percentage of the age group successfully completing higher education
Great Britain 1962

	Degree-level	Other	Percentage All higher education
Full-time			
University	3.4	0.3	3.7
Teacher training	—	2.4	2.4
Further education	0.6	0.3	0.9
All full-time	4.0	3.0	7.0
Part-time further education ...	1.0	1.4	2.4
Private study	0.2	0.2	0.4
All higher education	5.2	4.6	9.8

Source: See Appendix Two (A), Introduction

- Notes: 1. In addition, approximately 0.2 per cent. of the age group successfully completed full-time advanced courses in colleges of music and the like.
2. Degree level courses include courses for degrees and Diplomas in Technology and for college awards and professional qualifications of equivalent status.
3. In teacher training the figure shown is for 1961, since in 1962 the output was abnormally low in England and Wales because of the introduction of the three-year course for entrants in 1960.

* The Scottish Certificate of Education, introduced in 1962, is taken at the Higher grade (at the age of about seventeen) and the Ordinary grade (at about sixteen). It replaced the Scottish Leaving Certificate, in which subjects were taken at either Higher or Lower grade at about seventeen.

The growth of higher education

in medical subjects (11 per cent.) and highest in technology (20 per cent.). In further education it is over 60 per cent. for students reading for the London internal or external degree and just under 40 per cent. for those taking the Diploma in Technology. In courses leading to the associateship of senior Scottish Central Institutions wastage is just over 50 per cent. Wastage in part-time advanced further education is of the same order.*

53. In Table 8, which allows for wastage, we show the output from all full-time higher education of young people qualifying in 1962, most of them after three or four years' study. The number who obtained degrees at a university represented over 3 per cent. of the age group. The number who, by full-time, part-time or private study, obtained qualifications of degree or equivalent standard (for example the Diploma in Technology or certain professional qualifications) was about 5 per cent. of the age group. The total who qualified in all courses of higher education represented about 10 per cent. of the age group; about two thirds of these had studied full-time.

SUMMARY

54. In this chapter we have traced the development of higher education in Britain. We have seen that in 60 years the number of full-time students has increased more than eight-fold, and that in 1962 15 per cent. of the age group began courses of higher education: over 8 per cent. began full-time courses. In the next chapter we describe the growth of the main types of institution concerned.

* There is a full examination of the question of wastage in Chapter XIII; and statistics on wastage rates in different sectors of higher education will be found in Appendix Two (A), Part IV.

CHAPTER IV

Institutions of higher education in Great Britain

55. A general account of the courses provided in the institutions of higher education will be found in later chapters of the Report, where we also consider their role in the developing pattern that we envisage. The description of the institutions in this chapter is supplemented by more detailed information in the Appendices.

UNIVERSITIES

56. Including seven founded in the last five years, some of which are still at the stage of planning, there are thirty-one universities.* At present only universities among the educational institutions with which we are concerned have the power to award degrees. Moreover, while research is not confined to universities, their pre-eminence in that field has hitherto been such as to constitute an additional mark of distinction from other educational institutions. Finally, it is the universities and university institutions alone that receive Treasury grants from the University Grants Committee.†

Historical development

57. Universities may be considered in seven groups. First come Oxford and Cambridge, collegiate universities with their roots deep in the corporate life of the Middle Ages. Even today more than half their students live in college. These universities have each grown from about 5,000–6,000 students before the second world war to about 9,000 now. Today they provide places for 16 per cent. of all university students as against 22 per cent. before the war, but they still furnish for many the image of university life. Both the colleges and the universities are governed by academic bodies, no lay element or representative of central or local government being involved.

58. Next, in order of foundation, are the four ancient Scottish universities of St. Andrews, Glasgow, Aberdeen and Edinburgh. Founded in the fifteenth and sixteenth centuries, these have always had a standing of their own and many of their traditions are more like those of the Continent than of England and Wales. Except at St. Andrews relatively few of the students live in halls of residence provided by their university. Total student numbers have grown

* This includes as separate universities both Durham and Newcastle, which until this year were part of the single University of Durham. It also includes the Royal College of Science and Technology (Glasgow), now to be chartered as a university. Some universities embrace more than one institution. London is a congeries of university institutions, and St. Andrews, Manchester and Wales are each composed of two or more semi-autonomous institutions. A full account of the internal government of universities is given in Appendix Four, Part I, Section 3.

† See Chapter XVI.

from 10,000 before the war to 20,000 today. The universities' governing bodies include a substantial lay element and their academic establishments and programmes are co-ordinated by special relationships that were last prescribed in the Universities (Scotland) Act, 1889.

59. Third comes the University of London, a federation of colleges and schools, some of them the size of other universities in this country. By the 1820's there was growing dissatisfaction with the social and religious limitations of university education in England. This culminated in the foundation, in 1826, of University College, London. King's College was founded in 1829. The University of London was constituted by charter in 1836: until the end of the nineteenth century it remained largely an examining and degree-giving body. In parallel a number of important educational developments went on in the metropolis outside the University. The medical schools were created from earlier foundations, many of great antiquity. Bedford College, the first of the women's colleges, was established in 1849. Three colleges of science and technology were founded at South Kensington and coalesced in 1907 into Imperial College which joined the University a year later. The London School of Economics was founded in 1895. These are a few of the diverse threads that have been woven together over the years to form the present complex federation, which is governed under statutes made under the University of London Act, 1926. In all, the student population is considerably larger than that of any other two universities taken together. It is now 23,000 compared with 13,000 before the war. Just under a fifth of the students live in hostels or halls of residence. The constituent colleges have their own governing bodies but the appointment of senior staff and the curricula and conditions of examination for the various degrees are controlled by the University Senate and its organs. Unlike the colleges of Oxford and Cambridge, the colleges in London are geographically dispersed and themselves provide nearly all the teaching for their students. Some of the colleges such as University College and Bedford College are multi-faculty institutions. Others like the London School of Economics and Imperial College are more specialised. Both the constituent colleges and schools and the University are governed by bodies containing mixtures of lay and academic elements.

60. Fourth, we take the older civic universities of England (in order of foundation, Durham, Manchester, Birmingham, Liverpool, Leeds, Sheffield and Bristol). These were founded in the nineteenth century or before the first world war. They were originally intended to serve local needs but have become national institutions drawing students from all over the country. A fifth of their 36,000 students live in hostels or halls of residence. They have expanded continuously and now accommodate over a third of all the university students in England. At present the largest civic university is Manchester which has 7,700 students, including those reading technology at the College of Science and Technology.

61. Fifth, we take the University of Wales. A university college was founded at Aberystwyth in 1872. Other colleges were founded at Cardiff in 1883

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and at Bangor in 1884, and the University of Wales, a federation of the three colleges, was established in 1893. Between the wars the University College of Swansea and the Welsh National School of Medicine completed the federation. (St. David's College, Lampeter, is not part of the University but enjoys a special relationship with the University College of Cardiff.) The University of Wales now contains some 8,000 students, a third of them living in hostels or halls of residence.

62. Sixth, we take the younger civic universities. Reading, Nottingham, Southampton, Hull, Exeter and Leicester were founded as university colleges in the years before and after the first world war. Until they received university status (Reading in 1926: the others after the second world war), they taught for the London external degree. Since they became universities they have grown rapidly, but in 1962/3 only Nottingham had more than 2,000 students. One university college was founded immediately after the second world war. This was Keele, which taught for its own degrees under the sponsorship of three other universities until it became a university in 1962. Unlike the earlier foundations, the universities founded as university colleges have always attempted to provide residential accommodation for a high proportion of their students and at present half their 13,000 students are in hostels or halls of residence.

63. Despite the expansion that had been achieved in the existing universities it became evident by 1958 that more universities were going to be needed. In that year the government, on the advice of the University Grants Committee, approved the establishment of the University of Sussex and, in the following years, of six more universities at Norwich, York, Canterbury, Colchester, Coventry and Lancaster. These form our seventh group. In contrast to the university colleges established earlier, it was decided to give these foundations full degree-giving powers from the start, subject for a time to the advice of academic advisory committees. Most of these universities are expected to be largely non-residential in the early years, but some of them are experimenting with new methods of providing students with a satisfactory framework of social life and promoting those close and informal relations between teachers and students that are a characteristic feature of this country's tradition.

64. While there has been much initiative from the centre, all the new universities owe their origin to local enterprise and their government includes a strong lay element.

Students

65. Table 9 shows the universities grouped according to size in the autumn of 1962, when five had 8,000 students or more, and eight (apart from the new foundations) less than 2,000. Such a grouping of course only gives a snapshot at a particular point of time: by the autumn of 1963 some universities will have moved into a higher group*.

* Figures on the growth of individual universities will be found in Appendix Two (A), Part I.

Institutions of higher education

TABLE 9
Universities: by number of full-time students
Great Britain Autumn 1962

	Number of universities	Universities			Number
Number of students					
23,000	1	London			
9,000	2	Cambridge	Oxford		
8,000	2	Manchester	Wales		
5,000-6,000	3	Edinburgh	Glasgow	Leeds	
4,000-5,000	3	Birmingham	Liverpool	Newcastle	
3,000-4,000	2	Bristol	Sheffield		
2,000-3,000	3	Aberdeen	Nottingham	St. Andrews	
1,000-2,000	7	Durham	Exeter	Hull	
		Leicester	Reading	Southampton	
		R.C.S.T., Glasgow			
Under 1,000	2	Keele	Brighton		
In process of formation	6	Canterbury	Colchester	Coventry	
		Lancaster	Norwich	York	

Source: University Grants Committee

- Notes: 1. Universities are identified by the place in which they are situated.
2. London comprises 14 non-medical schools, 13 undergraduate medical schools, the British Postgraduate Medical Federation, the London School of Hygiene and Tropical Medicine and 10 specialised institutes. Details of their student numbers will be found in Appendix Two (A), Part I.
3. Manchester includes the College of Science and Technology.
4. Wales comprises four constituent colleges and a medical school. Separate figures will be found in Appendix Two (A), Part I.
5. In addition to the above universities St. David's College, Lampeter, is financially assisted by the University Grants Committee, under the sponsorship of and through the University College of Cardiff.

66. In 1961/2, taking the universities as a whole, 28 per cent. of the students were reading humanities, 4 per cent. Education, 11 per cent. social studies, 25 per cent. pure science, 15 per cent. technology, 2 per cent. agriculture and 15 per cent. medical subjects. But universities vary considerably in the proportion of students studying different subjects. At Oxford and Cambridge all but 14 per cent. of the students were studying arts or pure science. At London 42 per cent. were studying medical subjects or technology; the corresponding proportion in the Scottish universities as a whole was 40 per cent. Six established universities have no faculty of technology and eight have no faculty of medicine. In addition, the six newest universities will all initially be concerned mainly with the study of humanities, social studies and pure science.

67. Table 10 shows the number of students, undergraduate and postgraduate, in the different faculties in 1961/2. A third of all postgraduate students are from overseas. Some 16 per cent. of home students who obtain first degrees go on to take the Certificate of Education and another 20 per cent. to other forms of postgraduate study. Of the latter, nearly two thirds do research (mostly for a Ph.D.): the rest take an advanced course of instruction in some more specialised aspect of their subject.

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68. At the other end of the spectrum, 5 per cent. of undergraduate entrants, compared with 17 per cent. before the war, read not for a degree but for a diploma or other such award.

TABLE 10
Full-time students in universities: by faculty and level
Great Britain 1961/2

Great Britain 1961/2				Number
				<i>Percentage of all students in each faculty</i>
	Under-graduates	Post-graduates	All students	
Faculty				
Humanities	28,950	2,750	31,700	28
Education	—	4,450	4,450	4
Social studies	10,550	1,900	12,450	11
Science	23,050	5,650	28,700	25
Technology	14,250	3,000	17,250	15
Agriculture	1,700	350	2,050	2
Medical subjects	15,300	1,250	16,550	15
All faculties	93,800	19,350	113,150	100

Source: University Grants Committee Returns 1961-62, pp. 3 and 4, and (for Education) Table 7

Note: The number of undergraduates includes 4,600 students not reading for degrees. The faculties are defined in the Glossary.

Staffing

69. There is a discussion of the staffing of higher education in Chapter XII and, in more detail, in Appendix Three: in this chapter we give only the salient figures. In 1962/3 there were some 15,750 full-time university teachers, nearly all of them graduates. Some 12 per cent. of the staff (in 1961/2) were professors and 17 per cent. readers and senior lecturers. The overall staffing ratio in universities (taken here to mean the number of full-time students per full-time teacher*) in 1961/2 was 7.6. Table 11 shows staffing ratios in different faculties and university groups.

TABLE 11
Full-time students per full-time teacher in universities: by faculty and university group
Great Britain 1961/2

Great Britain 1961/2					Ratio
Faculty					University group
Humanities	...	...	...	8.9	Oxford and Cambridge
Social studies	...	...	...	9.7	London
Science	...	...	...	7.1	Larger civic
Applied science	...	...	...	7.3	Smaller civic
Medical subjects	...	...	...	5.8	Wales
					Scotland
All faculties	...	...	...	7.6	All universities

Source: Ratios by faculty: See Appendix Three, Annex Table E.1

Ratios by university group: See Appendix Three, Annex Table E.3

Notes: 1. The larger civic universities of England are those listed in Table 9 with more than 2,000 students. The smaller civic universities are the remainder.

2. Education is included with social studies.

* This differs somewhat from the method of calculation used by the University Grants Committee, which is explained briefly in Chapter XII and more fully in Appendix Three, Part I, Section 2.

Institutions of higher education

COLLEGES FOR THE EDUCATION AND TRAINING OF TEACHERS

England and Wales

70. The first Training Colleges were established in the nineteenth century by voluntary, mainly religious, bodies to train teachers for the schools they had set up. Local education authorities entered this field in 1902 and are now responsible for ninety-eight of the present total of 146 colleges.

71. Because the system grew up piecemeal, the colleges have tended to be scattered, variously housed and small. Table 12 shows that, of 140 colleges in 1958/9, only three had over 500 students. But the current expansion programme and the plans for further expansion have aimed at building up the size of selected colleges and concentrating these larger colleges around the universities. In 1962/3 there were twenty colleges with 500 or more students and they catered for a quarter of the students in training. Some 70 per cent. of all students live in accommodation provided by the colleges.

TABLE 12
Training Colleges: by number of students
England and Wales

	Number	
	Number of colleges	
	1958/9	1962/3
Number of students		
750 and over	—	1
500-749	3	19
250-499	39	80
Under 250	98	46
All colleges	140	146

Source: Ministry of Education. Detailed statistics on students in Training Colleges will be found in Appendix Two (A), Part II

Note: These figures include the four Technical Teacher Training Colleges as well as the general and specialist colleges. They omit the 16 Art Training Centres.

72. Most graduates who wish to obtain a professional qualification for teaching, usually in a secondary school, take a year's course in a University Department of Education: only 1 per cent. of students in Training Colleges are graduates taking a one-year course. The staple of the colleges is a general course, now of three years' duration, mainly for those entering straight from school who wish to train for teaching either in primary or in secondary schools. There are also a number of specialist colleges offering three-year courses for intending teachers of domestic science and physical education, and four Technical Teacher Training Colleges offering one-year courses primarily designed for those intending to teach in further education.

73. As part of the general course, students spend about fifteen weeks, or 15 per cent. of their time, in teaching practice in appropriate schools. The time of those preparing to teach in primary schools only (more than half the total) is divided amongst other activities as follows: about 35 per cent. is spent on main subjects (one or two subjects studied by the students for

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their own education sometimes to a standard approaching that of a pass degree); about 35 per cent. on curriculum courses (partly a refresher course in subject matter and partly a course in methods of teaching); and about 15 per cent. on principles of Education. Those preparing to teach in secondary schools spend more time on their main subjects and less on curriculum courses.

74. The general course was lengthened from two years to three for those entering the colleges in 1960, and it is too soon to compare their achievements with those of teachers who took the two-year course. But it is already clear that the additional year can make a valuable contribution to the students' personal education.

75. In four colleges it is possible to take a combined course, lasting four years, leading both to a professional qualification and to an external degree of the University of London. About 700 students are taking courses of this kind.

76. The teaching staff of the colleges has increased from less than 1,000 before the war to nearly 5,000 in 1962/3. Some 58 per cent. of the staff are graduates and most of the rest are lecturers in primary education or in specialist subjects like physical education not usually taught in the universities. There are eleven students to each full-time teacher (ten in 1961/2).

77. The principal of a college is in some cases a member of its governing body, which also normally includes members of the staff of the appropriate University Department of Education or Institute of Education (described in the next paragraph) or other university staff. But the administration and financing of the colleges are essentially outside the control of those directly engaged in their academic work. The costs of the ninety-eight colleges maintained by local education authorities are shared by all authorities in accordance with an accepted formula. The other forty-eight colleges, which are the responsibility of religious and other voluntary organisations, have the whole of their recurrent expenditure and up to three quarters of their capital expenditure met by the Ministry of Education.

78. For academic purposes the colleges are linked with universities through seventeen Institutes of Education, which range in size from the University of London Institute with thirty-four colleges to those at Exeter and Hull with two each. The University Departments of Education are normally members of the Institutes, but with their own separate functions; in London and four other places the functions of institute and department are combined in a single organisation under one director. The Institutes are responsible for supervising and co-ordinating the academic work of the colleges, mainly through boards of studies composed of lecturers from the constituent colleges and teachers from appropriate university departments. They approve syllabuses, conduct examinations and make recommendations to the Minister of Education for the award of qualified teacher status. They also provide further training for serving teachers by

Institutions of higher education

means of refresher courses and the like, and they assist the conduct of research.

79. On questions relating to the training as well as the supply of teachers, the Minister of Education is advised by a National Advisory Council, which includes representatives of local authorities, voluntary bodies, teacher organisations and Institutes of Education.

Scotland

80. There are seven Colleges of Education in Scotland, two of them Roman Catholic foundations. Most of the training, both for graduates* and for non-graduates, is concentrated in four main colleges, providing for 2,550, 1,550, 700 and 450 students respectively. The other three colleges each have less than 450 students. Less than a quarter of the total student population of just over 6,000 is accommodated in halls of residence or hostels. Since 1931 the non-graduate course has been a three-year concurrent programme of subject studies and professional training.

81. The number of teaching staff in the colleges has grown from just over 200 before the war to nearly 400 today; two thirds of the staff are graduates. There are sixteen students to each full-time teacher.

82. The central body concerned with the training of teachers is at present the Scottish Council for the Training of Teachers, on which teachers are represented. The colleges are administered by governing bodies that include representatives of education authorities, universities, teachers and the churches, with independent members appointed by the Secretary of State. They are financed partly by direct grant from the Scottish Education Department and partly by the education authorities in accordance with an accepted formula. Academic matters are the responsibility of the principal acting on the advice of the college board of studies, and the principal and staff have a large measure of freedom in the appointment of staff. Co-ordination between the colleges in academic matters is secured through the Committee of Principals and, at other levels, through meetings of lecturers in particular subjects. Apart from the inclusion of university representatives on the boards of governors, there is no formal link between the Scottish Colleges of Education and the universities.

INSTITUTIONS OF FURTHER EDUCATION

83. In the last century various institutions of further education were established to provide education, particularly technical education, for those who had received little formal schooling. Most of the students were in employment and attended classes in the evenings. By the end of the century some of these institutions had extended their courses, still

* All graduate teachers in the public system of education in Scotland must be trained.

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held mainly in the evenings, to the level of degree or professional qualifications. But it was not until after the second world war that there was a large-scale development of advanced day courses, whether part-time or full-time, and most of the development of full-time courses has occurred in the last ten years. A substantial volume of full-time work for degrees and other advanced qualifications is now carried out in many colleges in England, Wales and Scotland. These colleges also teach a large number of part-time students engaged on advanced work. Taking full-time and part-time students together, the colleges now teach 150,000 students working at advanced level. None of the colleges has power to award degrees, but many prepare students for the University of London's external degree and a few for the London internal degree. Many colleges in England and Wales also teach for the Diploma in Technology awarded by the National Council for Technological Awards (see paragraph 95) and for professional qualifications of a level equivalent to that of a degree.

84. The colleges have between them to meet many needs, ranging from those of the experienced technologist who wants a short informative course on a new highly-specialised development in, say, automatic control systems, to those of the operative who wishes to learn more about, say, the economical operation of boilers. More than half the full-time advanced students take courses in technology and science; but large numbers of students study a range of other subjects that include art, architecture, and social and business studies.

England and Wales

85. In 1956 four categories of college were defined in order to facilitate a rational distribution of resources: Colleges of Advanced Technology, Regional Colleges, Area Colleges and Local Colleges. But the system was left flexible with opportunities for a college to move from one category to another. All are expanding and even within each category there is a great deal of variety, because the colleges have differing traditions, serve different needs and are at different stages of evolution.

Colleges of Advanced Technology

86. There are ten of these and their emphasis is increasingly on full-time work for Diplomas in Technology or for degrees of London University. The present designation dates from 1956 when, as technical colleges of high standing, a number of them were selected by the Minister of Education for exclusive concentration on advanced studies. In 1962/3 they contained over 10,000 full-time advanced students. Table 13 shows that two had under 750, two had between 750 and 1,000 and the six largest had between 1,000 and 1,500. In 1962 they ceased to be maintained by local authorities and are at present administered by independent governing bodies, which include representatives of the teaching staff, and are financed by grants direct from the Ministry of Education.

Institutions of higher education

TABLE 13

Colleges of Advanced Technology: by number of full-time advanced students
England and Wales 1962/3

					Number
					Full-time advanced students
London and Home Counties					
Battersea	...	...	...	...	1,300
Brunel	...	...	...	...	550
Chelsea	...	...	...	...	800
Northampton	...	...	...	...	1,400
Birmingham	...	...	...	...	1,250
Bradford	...	...	...	...	1,100
Bristol	...	...	...	...	650
Cardiff	...	...	...	...	800
Loughborough	...	...	...	...	1,250
Salford	...	...	...	...	1,200
All colleges	...	...	...	...	10,300

Source: Ministry of Education

Note: Northampton College is in London and Brunel College is in Middlesex.

Regional Colleges

87. There are now twenty five colleges designated as Regional Colleges. In 1962/3 nearly 10,000, or about two thirds, of their full-time students and 23,000, or a quarter, of their part-time students were taking advanced courses. Sixteen of the colleges had more than 250 full-time students taking advanced courses and eight had upwards of 500. If an allowance is made for the teaching given to part-time students, nearly all the colleges can be said to teach the equivalent of at least 250 advanced full-time students and four of them to teach at least 750.

Area Colleges

88. In these colleges, of which there are about 160, lower level work predominates. But in a good number of them advanced work is developing rapidly and in some the number of students engaged in it is as large as in the smaller Regional Colleges. In 1962/3 the Area Colleges contained over 9,000 full-time and 63,000 part-time advanced students. Eight of the colleges had more than 250 advanced full-time students (or twenty-seven of the colleges, if allowance is made for part-time work).

Local Colleges

89. This fourth category of colleges is very largely concerned with training junior technicians, craftsmen and other workers, in addition to providing general education, and as such is outside our terms of reference; but, as advanced courses are approved from time to time in response to local initiatives, Local Colleges may move into the category of Area Colleges.

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Education in art and commerce

90. Art is taught in 165 Art Schools, some of which are separate institutions, while others are departments of technical colleges and one is linked with a Training College. In 1962/3 they contained some 8,000 full-time students taking advanced courses.

91. Business studies, both for industrial and commercial needs, are taught in departments of Regional and Area Colleges, but there are also a few colleges which are exclusively Colleges of Commerce. Most courses in commerce are still taken in the evenings, but the number of full-time and part-time day courses at advanced level has been increasing rapidly in the last few years.

Other colleges

92. Finally there is a small group of other colleges that receive direct grant from the Ministry of Education. These are in general highly specialised: leading examples are the Royal College of Art and the College of Aeronautics at Cranfield, with some 450 and 250 full-time advanced students respectively. The six National Colleges*, with 750 such students in all, provide courses in specialised technologies. Responsibility for the Agricultural Colleges, which at present contain few advanced students, is to be transferred from the Ministry of Agriculture, Fisheries and Food to the Ministry of Education in April, 1964.

Administration

93. Apart from the Colleges of Advanced Technology and those described in paragraph 92, nearly all colleges of further education are administered by local authorities, subject to the general regulations laid down by the Minister of Education, which include provision for sharing the financial burden of the advanced courses amongst all authorities. All the Regional Colleges and many of the other colleges have their own governing bodies with substantial representation from industry and commerce. There is usually no staff representation on the governing body.

Advisory Councils

94. Regional Advisory Councils, on which both industrial and educational interests are represented, advise local education authorities on the provision of courses designed to meet the special needs of industry in different parts of the country. At the centre the Minister is advised by the National Advisory Council on Education for Industry and Commerce, which is formed largely from representatives of the regions. There are also the United Kingdom Advisory Council on Education for Management and the National Advisory Council on Art Education.

* National College of Agricultural Engineering; National College of Food Technology; National College for Heating, Ventilating, Refrigeration and Fan Engineering; National Foundry College; National Leathersellers College; and National College of Rubber Technology.

The National Council for Technological Awards

95. The National Council for Technological Awards was established by the Ministry of Education in 1955. It awards the Diploma in Technology, after a four-year sandwich course in which periods of study in college alternate with one or more periods of industrial training. The diploma has been recognised by the Committee of Vice-Chancellors and Principals as of honours degree standard. Unlike the London external degree, it is based on college courses and examinations, approved by the Council through its boards of studies. By January, 1963 the Council had awarded 2,000 diplomas. At the postgraduate level the Council awards Membership of the College of Technologists.

Scotland

96. In Scotland nearly all full-time advanced further education is carried on in fifteen colleges known as Central Institutions which are financed directly by the Secretary of State for Scotland.* In 1962/3 six of these had between 500 and 750 advanced full-time students. Some of the larger Central Institutions are of broadly the same standing as the Colleges of Advanced Technology: they are in process of transferring to Further Education Centres those sections of part-time work that are below the level of higher education. Some are polytechnics, while others, such as the Colleges of Art and the Colleges of Domestic Science, offer a narrower range of courses. The Further Education Centres, which are maintained by education authorities, correspond broadly to Area and Local Colleges in England and Wales.

Great Britain : students and staffing

97. In Great Britain as a whole there were in 1962/3 some 43,000 full-time advanced students (including about 14,000 taking sandwich courses) in the institutions of further education. Of these a third were studying for degrees or for the Diploma in Technology. There were also 108,000 advanced students taking part-time courses, 53,000 in the day and 55,000 in the evening. Table 14 shows how advanced students were distributed between the various types of college to which we have referred and Table 15 shows the size of colleges in terms of student numbers.

98. In 1954/5 there were about 11,600 full-time teachers, of whom 41 per cent. were graduates, in all levels of further education in England and Wales and 800 in Scotland. In 1961/2 there were 24,600 and 1,800. Many staff teach both advanced and non-advanced students; and most of those who are not graduates have professional or other specialist qualifications of a vocational character. In Colleges of Advanced Technology, there were in 1961/2 some 1,600 full-time staff, of whom over 80 per cent. were graduates. In the Scottish Central Institutions—where the subjects taught cover a wider range—there were about 600 full-time teachers, of whom 45 per cent. were graduates. There were about eight students to each full-

* This figure excludes the Royal College of Science and Technology, Glasgow, which is treated as a university throughout the Report. Three of the Central Institutions are Agricultural Colleges and are financed through the Department of Agriculture and Fisheries for Scotland: the other twelve are financed through the Scottish Education Department.

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time teacher in Colleges of Advanced Technology, 7 : 1 in the remainder of further education in England and Wales and 9 : 1 in Scottish Central Institutions.* A feature of further education is the large use made of part-time staff.

TABLE 14
Advanced students in further education: by type of college and method of study
Great Britain 1962/3

Great Britain 1962/3					Thousands			
					Full-time	Part-time		All students
						Day	Evening	
Type of college								
England and Wales								
Colleges of Advanced Technology ...					10	5	4	19
Regional Colleges					10	11	12	33
Area Colleges					9	31	32	72
Local Colleges					—	2	2	4
Art Schools					8	1	1	10
National Colleges					1	—	—	1
Scotland								
Central Institutions					5	2	2	9
Further Education Centres					—	1	2	3
All further education					43	53	55	151

Source: Ministry of Education and Scottish Education Department. (Detailed statistics on students in further education will be found in Appendix Two (A), Part III.)

Notes: 1. The Royal College of Art is included in Art Schools.
2. The College of Aeronautics, Cranfield, is included with the National Colleges.

TABLE 15
Colleges of Advanced Technology, Regional and Area Colleges and Central Institutions: by number of advanced full-time students
Great Britain 1962/3

					Number			
					England and Wales			Scotland
					Colleges of Advanced Technology	Regional Colleges	Area Colleges	Central Institutions
Number of advanced full-time students								
750 or more	...	...	...	...	8	2	—	—
500-749	...	...	...	...	2	6	—	6
250-499	...	...	...	...	—	8	8	3
Under 250	...	...	...	...	—	9	98	6
None	...	...	...	...	—	—	59	—
All colleges	...	...	...	...	10	25	165	15

Source: Ministry of Education and Scottish Education Department

* In arriving at these figures both full-time and part-time students have been included and divided by the total number of full-time staff. (Four part-time day students or ten evening students are regarded as equivalent to one full-time student.)

CHAPTER V

International comparisons

99. We hope that our brief account in the last two chapters of the way in which British higher education has developed has already begun to set the current situation in perspective. We now propose to compare the pattern of British higher education with that in other countries. Such comparisons are full of pitfalls, as we shall presently show, but to look at systems very different in structure brings into the open assumptions implicit in the British pattern. Our experiences abroad have confirmed some cherished beliefs about the excellences of British higher education, but they have caused us to re-examine others. Moreover, if proper precautions are taken, it is possible to compare quantitatively the provision made here with that overseas, and this has led us seriously to question the adequacy of what is at present planned in this country.

100. In Appendix Five we shall set out at length such information as we have gathered on the seven countries we visited and on certain Commonwealth countries that we should have liked to visit if time had allowed. It is possible to distinguish radically different traditions, and in this chapter we shall limit ourselves to generalisations. We deal first with the general contours of the various systems of higher education, then with the different opportunities that they offer to the young people of the country concerned. Finally we try to compare the quality of the educational systems and the size of the contribution they make to national needs, glancing at the outlays involved. These are no more than a few central aspects of matters dealt with at greater length in Appendix Five. But they form an appropriate prelude to our discussion of the future provision to be made for higher education in Great Britain.

DIFFERENT STRUCTURES

101. There is a basic distinction between large and comprehensive arrangements such as are found in the United States of America, where rather over a third of the age group* now enter higher education of extreme diversity in content and level, and smaller hierarchial systems such as those of Western Europe, where universities tend to be sharply distinguished from other institutions and where the proportion of the age group in full-time higher education is usually less than a third of the proportion in the United States. In this respect Britain is to be classed with Europe.

Britain and Western Europe

102. There are of course important differences between the organisation of higher education on the Continent and in Britain. This is obvious in many areas of study, but above all in technology. Technology was accepted into British universities during the nineteenth century. On

* The concept of the age group is explained in the Glossary.

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the Continent it was not; but the forces demanding technological education were powerful enough to build up Technical High Schools* outside the universities. The scope and scale of some of these institutions are such that many think that the piecemeal and sometimes reluctant acceptance of technology by the British universities was to this country's ultimate loss. In this country technology has been widely scattered, partly in universities and partly outside, a weakness of organisation that has long been recognised and that began to be remedied in 1953, when the government announced plans for a massive expansion of the Imperial College of Science and Technology and other centres.

103. Within the university systems themselves there are probably fewer distinctions in Europe than in Britain, where the prominence of Oxford and Cambridge is so marked. In the Federal German Republic, in Sweden and in the Netherlands, the older universities no longer have so powerful an attraction for the best students and scholars. The only parallels that are at all close are in France. Here the Sorbonne certainly has a commanding position, but some of this at least is the attraction of Paris itself. The real analogy in French higher education to Oxford and Cambridge is not a university but the small group of *Grandes Ecoles*, such as the *Ecole Normale Supérieure* and the *Ecole Polytechnique*: these are more exclusive in their spheres than any British institution.

104. Again there are differences between Britain and Europe in the organisation of higher education that is not of university level. In many continental countries the education of primary school teachers is still carried out in 'normal schools', where the education of teachers is simply an extended form of secondary education. In Western Europe colleges of education are seldom treated as belonging to the system of higher education proper, as they are in the United States and the Soviet Union, and as they have come to be in this country.

105. But in spite of the many differences between Britain and Europe there is a common sense of hierarchy, which stems from their past, and a certain resistance to fundamental change. New types of institution may establish themselves in time, but they have a difficult road, and universities as such continue to be regarded as sharply distinguished from them.

The United States of America and the Union of Soviet Socialist Republics

106. The systems in the United States and the Soviet Union present a sharp contrast to the foregoing. Much as they differ from each other, they share a more variegated pattern of institutions. Professional training is provided within both systems in far more forms than in Europe. This variety is no doubt in part to be attributed to the individual history of each country, but in part also it seems to be a function of the scale on

* We use this term throughout our Report as a translation of *Technische Hochschule* or its equivalent in other languages. It connotes an institution of university level specialising in science and technology. 'Technical High School' in English may suggest an establishment providing secondary education, but other phrases commonly used in translation (such as 'Technological University' or 'Institute of Higher Technical Studies') can be equally misleading.

which higher education is provided: the nature and functions of institutions change imperceptibly as the numbers of students in higher education grow.

107. In the United States there were never fixed lines of demarcation between institutions of different kinds, and although it is possible to distinguish the private and the state universities, the liberal arts colleges, the land-grant colleges, the teachers' colleges or the professional schools, now, as the tide of numbers advances, distinctions between categories of institution are tending to become even less clear. There are very large differences in the prestige and academic standing of individual institutions, but this does not prevent colleges that were formerly confined to one or two specialisms from developing to cover wider fields of knowledge, and many liberal arts colleges that were formerly content to provide courses leading only to the first degree are now developing postgraduate work.

108. Only in a few American states has there been any sustained attempt to devise and carry out a plan for the co-ordinated development of institutions of higher education. The most conspicuous example is California. In that state half the young people already enter higher education, compared with just over a third in the United States as a whole, and even after limitation under the state plan the State University on its eight campuses will have 120,000 students by 1975. Sheer weight of numbers was a major reason for the decision to limit the expansion of the University at undergraduate level. This has led to the large-scale development of junior colleges. These make it possible for students who fail to gain entry to the University to take the first two years of the course, often nearer their homes and with less expense. If they are successful, they may then transfer to the University to complete a first degree. The junior colleges have also a second important function in providing a complete, though shorter, form of higher education for students who leave after two years. Another feature of the plan is the proposed concentration of postgraduate studies in the University. This is to be achieved by preventing the State Colleges, which provide many courses in parallel with the University, from giving doctoral degrees in their own right.* Other states may have later to adopt California's methods of planning but they are a clean break with American tradition, in which all subjects of study and all institutions are treated alike and left to find their own level.

109. The system in the Soviet Union exemplifies an alternative method of achieving a varied pattern of institutions. Here again there is no caste-system among institutions of different types, although Moscow and Leningrad Universities stand out in prestige. The universities proper provide for only some 10 per cent. of enrolments in higher education: additional needs for qualified people have been met by the multiplication of specialised institutions, many of which now equal the universities in repute. Colleges like the Leningrad Polytechnic Institute are very similar to the German Technical High Schools in this respect, but the process of building up special colleges has in Russia been carried very much further, so that universities are now devoted mainly to arts and science in their 'pure' forms and mostly exclude fields such as law, medicine and economics.

* For a fuller description of the Californian plan see Appendix Five, Part X.

Chapter V

THE OPPORTUNITIES OPEN TO STUDENTS

Freedom of access

110. We turn now to look at institutions from the students' point of view. Different systems offer widely different opportunities for higher education to the young people of their respective countries. From this aspect there is a fundamental distinction between the traditions of Western Europe and those of Britain. In England and Wales the successful completion of a sixth form course gives no right of admission to higher education. In Scotland too, although an 'attestation of fitness' is awarded to students by the Universities Entrance Board on the strength of performance in school examinations, in recent years this has given no guarantee of admission to a university. In sharp contrast, the tradition is still largely maintained in Western Europe that the *Abitur*, *Baccalauréat* or the equivalent is a passport to higher education. There are usually faculty requirements, which bring it about that a particular leaving certificate does not give admission to all courses; and even where this is not the case, as in Germany, shortage of accommodation may effectively impose a *numerus clausus* in some disciplines. Moreover, in France there is fierce competition for entry to the *Grandes Ecoles*. But in general in France, as in all these countries, the obstacles at the point of entry to higher education are minimal, a circumstance which goes far to explain the large numbers of students in higher education at present.*

111. The only system we have examined that offers a parallel to British traditions, with a high degree of selection amongst those who wish to enter higher education, is that of the Soviet Union. In that country, institutions of higher education operate their own stringent entrance examinations. The great expansion of higher education that has taken place provides for only a third of those who have successfully completed secondary education, although further expansion and the smaller size of the age groups may lessen the degree of competition for places in future. The United States shows features of both the continental and the British systems: there is stiff competition for entry to institutions of national repute, but some of the state universities still admit any high school graduate.

112. Easy access usually carries with it high wastage or a prolongation of study beyond the minimum period. In the Soviet Union, where admission is selective, students usually complete the course in the allotted time, and the wastage in full-time courses is about 20 per cent., which approaches the low figure in British universities. But in the Netherlands, with more or less automatic entry for all with the requisite school qualification who choose to apply, it is common to spend seven years on courses that in theory last four or five: one third of all university students are over twenty five years of age. And, on top of this, wastage is as high as 40 per cent. In France, the *Grandes Ecoles* carry with their highly competitive entry the corollary

* In countries where access to higher education is relatively easy for those with the necessary school leaving qualifications, the major factor determining the proportion of the age group entering higher education is the proportion completing secondary education. This varies widely, but is in many cases lower than in Britain.

of very low wastage. But in the universities, in spite of steps taken to remove unsuitable students by a preliminary examination after the first year, the wastage of students by the end of the three-year course is over 50 per cent. In those American institutions which can pick their students from a wide field the wastage is sometimes no higher than at Oxford or Cambridge. But this is offset by the extremely high wastage from universities and colleges that are less selective. Thus, overall, about 45 per cent. of students in the United States who enter courses for the first degree fail to obtain the qualification they are seeking.

Methods of study

113. If all types of higher education are taken into account, a greater proportion of students in Great Britain are studying part-time than in the United States. In Britain about 40 per cent. of students take courses of part-time or private study;* in the United States only about 15 per cent. Full-time students in the United States—as in Europe—very often have to supplement their incomes by spare-time work, but they are students first. In Britain technical education got away to an early start by part-time courses, and the tradition of part-time study only began to change very recently. Other countries, which started later, tended to establish full-time courses from the start.

114. The Soviet Union is the only country we visited where part-time courses play a leading role: only 50 per cent. of the students in 1959 were studying full-time. About 10 per cent. were studying in the evenings and the remaining 40 per cent. were taking correspondence courses supervised by institutions of higher education. Recent policy changes will result in an even larger proportion of students taking evening or correspondence courses in the future. Under current plans, only about 40 per cent. of the students will attend full-time courses, and most of these will first have had to spend two years in non-academic employment or, alternatively, will have to undertake a period of such work during the course. Correspondence students take longer to obtain their qualifications. They have time off from their work to prepare for examinations, carry out laboratory work, and meet their tutors from time to time. The Soviet authorities are confident that they can eventually overcome the educational disadvantages inherent in study by correspondence. And, whatever might be thought elsewhere, they themselves believe that this method of study is of considerable value in itself, since it does not segregate students from the general social and economic life of the country.

Residence and student finance

115. In many of the countries we visited the difficulty of finding suitable lodgings for a growing student population is causing the public authorities to give some priority to the provision of student accommodation. This is not always in halls of residence—in France and Scandinavia, for example, many blocks of student flats are now being erected—nor is it always undertaken directly by the public authorities or even at public expense. Moreover, in all countries on which we could obtain information, it seems that

* See Chapter III, paragraphs 45 and 46.

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the present proportion of students living in accommodation associated with their university or college is less than the proportion in British universities, and in general the effort now being made will only enable them to reach a position similar to that in this country.

116. The low proportion of students in residence is connected in many countries with the relatively small provision made for assisting students with their maintenance. Apart from the Soviet Union, none of the other countries described in Appendix Five makes provision from public funds for assisting as high a proportion of students as does Great Britain. Not only is the proportion of those assisted smaller, but in many countries a substantial part of the assistance is given by loan rather than by grant. When students have to pay their own way, whether wholly or in part, it is understandable that they often prefer cheaper arrangements of their own to living in residential accommodation associated with their institution.

THE CONTENT OF COURSES AND THEIR STANDARD

117. There is no question of our attempting here a full discussion of the comparative content and standards of higher education in different countries, but before any comparisons of student numbers are made it is obviously necessary to make clear the wide differences between countries, both in the level of attainment that students reach in their chosen field and in the breadth of the curriculum they follow.

118. To begin with attainment in the chosen field, there is, of course, a wide variation of entry standards. It is often said that in the United States the third, or 'junior', year of the course represents the nearest equivalent to the standard reached by students entering courses for honours degrees in England and Wales, and that the subject matter covered in the first two years is here dealt with in the sixth form. Similarly, the first of the five years in the Soviet Union seems to cover ground commonly dealt with in British schools. But an important feature of systems abroad is the greater minimum length of courses—normally four years in the United States, five in the Soviet Union and four or five in most Western European countries. The student in the Soviet Union, by virtue of the five-year course, seems in some subjects to reach a standard as high as in Britain, if not higher.

119. In Western Europe the standards achieved in specific fields in the school leaving examinations are often little inferior to those expected in the Advanced level of the General Certificate of Education; hence the five-year course in a country like the Federal German Republic might also suggest a higher standard in the final degree. Sometimes indeed this may be so, but it is important to bear in mind the quality of instruction received. This is virtually impossible to demonstrate statistically, but some indication is perhaps afforded by the following table of university staffing ratios, adjusted to allow for the greater use made abroad of part-time teachers.* In many Western European countries instruction by class or seminar is only just beginning to be at all common practice.

* See Appendix Five, Part I for a description of how this has been done. Problems in the interpretation of student/staff ratios are discussed in Appendix Three, Part I.

International comparisons

TABLE 16
University student/staff ratios in selected countries
1960

	Ratio
Great Britain	8
France	30
Germany (F.R.)	35
Netherlands	14
Sweden	12
U.S.A.	13
U.S.S.R.	12

Source: See Appendix Five, Part I

120. Thus far, in speaking of standards, we have been concerned only with achievement in the student's chosen field. There are also wide differences in the area of knowledge that the syllabus requires the student to cover.

121. A graduate of one of the better American universities will have taken a course involving a comparatively wide spread of subjects, not chosen at random, as is often thought, but conforming to a planned range of choices. Some two thirds of graduates in England and Wales will have taken an honours course in one subject, that is, their studies will have been based on a single core, although supported in general by related and ancillary subjects. There can be no doubt that the British graduate will have gone further in his central subject, and to study any subject in depth may have an educational value for those who can benefit from it quite apart from the intrinsic merit of the particular course. But whatever may be thought of the American college-credit system—and its worst excesses have by now been mitigated—American courses certainly cover a much wider ground. Even in the Soviet Union, where all education is held to have a specific vocational goal and the final stages of courses—in science and technology and other fields—are highly specialised, the earlier years include a substantial area of basic subjects and cultural as well as political education. The contrast with other countries is not so strong for those British students who follow general or combined courses, but even so there are fundamental differences before entering higher education. The specialised sixth form, like the British honours degree, is the exception in the world and not the rule.

QUANTITATIVE COMPARISONS

Total numbers of students

122. We now turn to quantitative comparisons. We have already said enough about content and standards to show how misleading unqualified comparisons can be. Comparisons of total student numbers are particularly dangerous. For example, in 1960 there were roughly 32 full-time degree-level students per 10,000 population in the Netherlands, 44 in France and 56 in the Soviet Union, compared with 20 in Great Britain.

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When comparison is made with the universities and colleges of the United States, it is obviously appropriate (because of the different institutional pattern) to include at the least all full-time advanced work in British further education and in Training Colleges, but on this basis there are still only 33 students per 10,000 population in Britain and 125 per 10,000 there.*

The numbers entering

123. But, quite apart from the fact that these figures take no account of standards on entry, they are inflated by the greater length of courses and sometimes by the presence of 'perpetual students'. It is therefore better to look at the numbers entering higher education, and at the output from higher education, in relation to the size of the age group. The approximate percentage of the age group admitted to institutions of higher education in various countries in 1958/9 is shown in Table 17

TABLE 17
Percentage of the age group entering higher education in selected countries
1958/9

	Percentage			
	Full-time courses only		All methods of study	
	Courses of British degree level	All levels of higher education	Courses of British degree level	All levels of higher education
Great Britain ...	4.5	7.7	6.9	12.5
France ...	7	9	7	9
Germany (F.R.) ...	4	7	5	7
Netherlands ...	3	6	4	7
Sweden ...	10	12	11	13
U.S.A. ...	20 (Junior year)	30	22 (Junior year)	35
U.S.S.R. ...	5	5	10	10

Source: See Appendix Five, Part I

- Notes: 1. Because only approximate data were available on part-time courses and (in some countries) on full-time courses below degree level, the estimated percentages for countries other than Great Britain have been rounded to the nearest whole number.
2. More detailed information, including data on certain Commonwealth countries, which became available too late for analysis here, will be found in Appendix Five.
3. In the Netherlands the relatively low proportion of the age group entering 'courses of British degree level' seems to be largely the consequence of a relatively low proportion obtaining the necessary school-leaving qualifications.

* Students from overseas are excluded from all these comparisons.

International comparisons

which is set out so as to take some account of differences in entry standards.* It will be seen that, in terms of opportunities offered, the British system came some way down the list, particularly if full-time courses only are taken into account. As Appendix Five will show, comparison with certain Commonwealth countries is also often unfavourable to Great Britain.

124. Table 17 relates to both men and women entrants. The percentage of women among those entering full-time courses of degree level in Great Britain (28) is rather higher than in the Federal German Republic or the Netherlands but lower than in Sweden (35), France (40) or the Soviet Union (42). The large numbers of girls entering Training Colleges in Britain redress the balance, so that amongst entrants to all full-time courses the percentage of women is 40—the same percentage as in the United States. But British part-time and correspondence courses recruit very few women students: if all levels and methods of study are taken together the percentage of women entrants in Britain is only 25 overall, compared with 40 in the United States and 45 in the Soviet Union, where part-time and correspondence studies are not the exclusive preserve of men.

Achievement

125. Admissions indicate the degree of opportunity open to students: they do not show the effectiveness of the different systems in producing results. In particular, they ignore wastage during the course. If we look not to entry but to achievement, the picture alters considerably. Table 18†

* In Table 17—and the corresponding table later in the chapter giving estimates for the future on a comparable basis (Table 19)—the information given relates to those entering the following types of course:

Courses of British degree level

Courses provided by universities and Technical High Schools leading to a first degree or equivalent qualification (Europe); courses giving credit towards a Bachelor's or first professional degree (U.S.A.); courses for first diplomas in VUZy (institutions of higher education) (U.S.S.R.). In the case of the U.S.A., figures given show estimated entry to the third (junior) year. In the Soviet Union it is not possible to distinguish between 'degree level' courses and others, and all courses in VUZy are treated as of degree level.

All levels of higher education

In addition to the courses listed above, the figures include those stages of further education and teacher training which, in the European countries concerned, are held to be above the level of secondary education. The figures for the United States relate to those entering the first (freshman) year of courses giving credit towards a Bachelor's or first professional degree. In the Soviet Union the entry to *Technicums* is not included.

† In Table 18—and the corresponding table later in the chapter giving estimates for the future on a comparable basis (Table 20)—the information given relates to the output of the following types of course:

Courses of British degree level

First degrees and equivalent qualifications from universities, Technical High Schools and other institutions (Europe); Bachelor's and first professional degrees (U.S.A.); diplomas awarded by VUZy (U.S.S.R.). Except in France, these courses are normally of longer duration than corresponding British courses. In the Soviet Union it is not possible to distinguish between 'degree level' courses and others, and all courses in VUZy are treated as of degree level.

All levels of higher education

In addition to the above, the figures include the output from those courses of further education and teacher training that are above the level of secondary education. In the Soviet Union, the output of *Technicums* is not included.

Figures for Great Britain were given in more detail in Chapter III (Table 8).

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shows that the numbers who qualified around 1961/2 are in most countries considerably less than the number entering higher education in 1958/9, shown in Table 17. Table 18 includes qualifications obtained by part-time as well as by full-time study.

TABLE 18
Percentage of the age group completing higher education in selected countries
1961/2

		Percentage			
		Science, engineering, agriculture only		All subjects	
		Courses of British degree level	All levels of higher education	Courses of British degree level	All levels of higher education
Great Britain	...	2.4	3.7	5.6	9.8
France	...	2	..	3	5
Germany (F.R.G.)	...	2	..	3	4
Netherlands	...	1	..	2	4
Sweden	...	2	..	6	7
U.S.A.	...	.	4	.	17
U.S.S.R.	...	4	4	7	7

Source: See Appendix Five, Part I

Note: A number equivalent to 3.4 per cent. of the age group obtained Master's degrees in the United States: the standard of Bachelor's and Master's degrees will be discussed in Appendix Five.

126. It will be seen that comparisons in terms of the proportion of the age group obtaining a first degree or diploma are much more favourable to this country than those made in terms of the opportunity students are given to enter. The output in Britain is equal or superior to that in most of the Western European countries shown. We suspect that a full comparative investigation would reveal that, on its chosen ground, the British university system is among the most efficient and economical in the world. But the output of British higher education is, in very important respects, smaller than that of the Soviet Union or the United States. In the Soviet Union, the output from scientific and technological courses at all levels, as well as the total output in all subjects from courses of British degree level, is greater than in Britain. There may be much dispute about the standard of some first degrees in the United States—we shall touch on this topic in Appendix Five—but the proportion of the age group successfully completing higher education in that country is undeniably much greater than in Britain. Even if Britain does not fare so badly in a comparison of qualifications of the level of British honours degrees, a far greater proportion of the population in the United States has had the benefits of higher education. Moreover, the total advantage of higher education to a country or to its people cannot be fully described in terms of the numbers who successfully complete it. Those who abandon higher

International comparisons

education in other countries may yet be more useful citizens in the community on account of their experience.

127. On the whole, therefore, our analysis of the present situation does not justify the extremely alarming conclusions that have often been reached on the basis of relative numbers of students or of the proportion of the population entering higher education. But, although the annual output of those with degrees or equivalent diplomas in Great Britain compares well with that of Western Europe, it is sobering to reflect that the opportunity to attempt a degree course is substantially less. And there is no denying the unfavourable comparison in numbers with the United States or the Soviet Union.

Expenditure

128. In Appendix Five we attempt some comparison of expenditure on higher education in a number of countries. Valid comparisons here are even harder to make than those we have just been discussing. But certain broad conclusions can be reached with reasonable safety. In relation to national income, present expenditure on higher education in the countries we visited is sometimes higher than in Great Britain. This might have been foreseen from the greater numbers of students, but the difference is not so large as the difference in student numbers would lead one to expect, largely because of the better staffing ratios in British institutions. Moreover, in North America, income from private sources provides a greater share of the income of institutions than in Britain; and in none of the western countries we visited are students so extensively assisted from public funds. In terms of annual public expenditure per student British higher education is more costly than most. In terms of total public expenditure per graduate it is economical, because of lower wastage and shorter, more concentrated, courses of study.

The future

129. We have so far spoken only of the present. When we look at what is planned for the future, the comparison between this country and other highly developed countries is more disquieting. Almost everywhere we have travelled we have been impressed by an urge to educational development, and a valuation of the importance of higher education, which has often been translated into plans for expansion far surpassing the scale of present British plans. Thus in France *l'explosion scolaire* is publicly recognised in the official plans to increase the size of the university population from 200,000 in 1960 to 500,000 in 1970. The Soviet Union has an equally ambitious programme of development. And, even in countries where no targets for expansion have been fixed by the government, estimates of the probable scale of development produce large totals. Tables 19 and 20 give estimates of the entry to higher education and the output of qualified people corresponding to Tables 17 and 18, but ten years further on.*

* In the case of Great Britain, France and the U.S.S.R., the figures shown in these tables are based on official plans. In the United States, and other countries where no precise targets for expansion have been officially adopted, the figures are based on official estimates of probable trends.

Chapter V

TABLE 19

Percentage of the age group expected to enter higher education in selected countries
1968/9

		Percentage			
		Full-time courses only		All methods of study	
		Courses of British degree level	All levels of higher education	Courses of British degree level	All levels of higher education
Great Britain	...	6	10	8	16
France	...	14	17	15	18
Germany (F.R.)	...	9	..	11	..
Netherlands	...	6	..	7	..
Sweden	...	14	18	15	19
U.S.A.	...	35 (Junior year)	48	40 (Junior year)	55
U.S.S.R.	...	13	13	30	30

Source: See Appendix Five, Part I

Note: See footnote to paragraph 123 for the courses in other countries covered by this table. Figures for degree level courses in Great Britain relate to universities and Colleges of Advanced Technology, with an allowance for other institutions.

TABLE 20

Percentage of the age group expected to complete higher education in selected countries
1971/2

		Percentage			
		Science, engineering, agriculture only		All subjects	
		Courses of British degree level	All levels of higher education	Courses of British degree level	All levels of higher education
Great Britain	...	4	5	7	12
France	...	4	..	8	10
Germany (F.R.)	...	..	..	6	..
Netherlands	...	..	..	4	..
Sweden	...	4	..	10	13
U.S.A.	...	..	7	..	29
U.S.S.R.	...	14	14	24	24

Source: See Appendix Five, Part I

Note: For the courses in other countries covered by this table see footnote to paragraph 125. For British courses, see footnote to Table 19.

International comparisons

130. Those countries that have adopted ambitious plans will not necessarily achieve their targets in full. Moreover, the British figures take account only of policies already made public, and the picture will be improved if immediate action is taken on the recommendations we make later in this Report. But at the present time the conclusion is plain: the comparison of numbers likely to qualify is no longer favourable, and the disparity in the numbers entering higher education is even wider than it is today. Both in general cultural standards and in competitive intellectual power, vigorous action is needed to avert the danger of a serious relative decline in this country's standing.

CHAPTER VI

The future demand for higher education and the places needed to meet it

131. We have shown how, both at home and abroad, higher education in the 1960's is in process of great expansion, and we have indicated the pressures underlying the expansion that has already taken place in Great Britain. In this chapter we shall consider the principles on which plans for the future should be based and shall make recommendations for the scale on which full-time places should be provided in the years up to 1980.

132. We must emphasise at the start the necessary limitations of the estimates we make. They are subject to a considerable degree of uncertainty and this increases the further they are projected into the future. This is no argument for not making the best estimates possible. They are essential to educational planning and one of the causes of present difficulties is the inadequacy of forecasts made in the past. But it is equally important that such estimates should be constantly reviewed. We shall discuss in a later chapter the setting up of machinery to perform this task. Here we will only say that the estimates we are about to present, though made on what we believe to be the best possible basis, will need to be subjected to continual re-examination.

GUIDING PRINCIPLES

133. In principle, the problem of estimating the number of places required can be approached in two ways: by considering what supply of different kinds of highly educated persons will be required to meet the needs of the nation, or by considering what the demand for places in higher education is likely to be. We have decided that the second approach presents the sounder basis for estimates.

134. We have found the first approach impracticable. For, while it is possible, for a number of professions and over a short term, to calculate with a fair degree of precision what the national need for recruits will be, we have found no reliable basis for reckoning the totality of such needs over a long term. The matter is dealt with at some length later in this chapter, when we explain the extent to which our conclusions take into account specific national needs. Here we would only emphasise that, although we have not made national need the main basis of our estimates, this must not suggest that we have any doubt of the value to the country of a greatly increased stock of highly educated people and of the absolute necessity of a great increase in the present provision of places in higher education if this country is to hold its own in the modern world. The case for regarding higher education as one of the most important forms of national investment is argued in Chapter XIV.

Future demand and places needed

135. Having rejected a forecast of manpower needs as the central basis for our estimate of places, we have to state the principle on which we assess demand. Different principles are likely to apply to home students and to overseas students. We begin with home students.* Our guiding principle here is that which we affirmed in Chapter II: all young persons qualified by ability and attainment to pursue a full-time course in higher education should have the opportunity to do so.

PLACES FOR HOME STUDENTS

136. We have to estimate how many persons are likely to be qualified to pursue a course of higher education in the future and how many will wish to do so. Since qualification depends both on natural ability and on a certain level of attainment, we have, before making our estimates, to consider first the nation's resources of ability and then, making assumptions about the standards of attainment appropriate for future entrants, to examine the likely demand from qualified people.

The so-called pool of ability

137. It is sometimes argued that growth in the number of those able to benefit from higher education is something that is likely to be limited in the foreseeable future by biological factors. But we believe that it is highly misleading to suppose that one can determine an upper limit to the number of people who could benefit from higher education, given favourable circumstances. It is, of course, unquestionable that human beings vary considerably in native capacity for all sorts of tasks. No one who has taught young people will be disposed to urge that it is only the difference in educational opportunity that makes the difference between a Newton or a Leonardo and Poor Tom the Fool. But while it would be wrong to deny fundamental differences of nature, it is equally wrong to deny that performance in examinations or tests—or indeed any measurable ability—is affected by nurture in the widest sense of that word. Moreover, the belief that there exists some easy method of ascertaining an intelligence factor unaffected by education or background is outmoded. Years ago, performance in 'general intelligence tests' was thought to be relatively independent of earlier experience. It is now known that in fact it is dependent upon previous experience to a degree sufficiently large to be of great relevance. And once one passes beyond tests of this kind and examines for specific knowledge or aptitudes, the influence of education and environment becomes more and more important.

138. Considerations of this sort are important at all stages of education, but especially at higher stages. For by then the effects of earlier education and environment in moulding and modifying fundamental biological equipment have produced a cumulative effect. It is no doubt true that there are born a number of potential 'firsts' whose qualities are such that they win through whatever their environmental disadvantages, and another, considerably larger, number who, if trained by the most famous teachers in

* This term is defined in the footnote on page 15.

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history, would still fail their examinations. But in between there is a vast mass whose performance, both at the entry to higher education and beyond, depends greatly on how they have lived and been taught beforehand.

139. Of this we have received ample evidence both from our witnesses and also from a survey we conducted of a sample of men and women aged twenty-one in August 1962.* One of the purposes of this survey was to throw light on the factors affecting the achievement of school children and their entry to higher education. The Crowther Report† had already indicated

TABLE 21†
Percentage of children born in 1940/1 reaching full-time higher education:
by father's occupation
Great Britain

		Percentage				
		Full-time higher education		No full-time higher education	All children	Numbers (=100%)
		Degree-level	Other			
Father's occupation						
BOYS AND GIRLS	<i>Non-manual</i>					
	Higher professional...	33	12	55	100	15,000
	Managerial and other professional ...	11	8	81	100	87,000
	Clerical ...	6	4	90	100	38,000
	<i>Manual</i>					
	Skilled ...	2	2	96	100	248,000
	Semi- and un-skilled	1	1	98	100	137,000
BOYS	<i>Non-manual</i> ...	15	4	81	100	70,000
	<i>Manual</i> ...	3	2	95	100	189,000
GIRLS	<i>Non-manual</i> ...	9	10	81	100	70,000
	<i>Manual</i> ...	1	2	97	100	196,000

Source: Survey of 21-year-olds. (See Appendix One, Part II, Section 2 for details.)

Notes: 1. The table shows the proportion of children born in 1940/1 who had reached higher education by 1961/2.

2. For definition of degree level courses see note to Table 8.

3. Definitions of the various occupational groups are given in the Glossary.

4. The figures for total numbers in each group are population estimates based on the survey. The table excludes those whose fathers' occupations were not known and whose fathers were unoccupied or dead.

* The findings of this survey are given in Appendix One, Part II, together with other evidence on the factors affecting school attainment and entry to higher education. The question of the 'pool of ability' is discussed in Part III of that Appendix.

† '15 to 18', Report of the Central Advisory Council for Education (England) (H.M.S.O., 1959).

‡ This table is based on a sample survey and the figures are therefore subject to sampling errors. For simplicity of presentation, the possible margins of error are not given here, but comments in the text are made in the light of sampling errors: for example, any differences (between groups) remarked upon are statistically significant. This qualification applies to all the survey tables in the Report; guidance on sampling errors will be found in the appropriate Appendices.

Future demand and places needed

the close association between a father's level of occupation and the educational achievement of his children at school. As Table 21 shows, our survey confirmed that the association with parental occupation is, if anything, still closer where higher education is concerned. For example, the proportion of young people who enter full-time higher education is 45 per cent. for those whose fathers are in the 'higher professional' group, compared with only 4 per cent. for those whose fathers are in skilled manual occupations. The underlying reasons for this are complex, but differences of income and of the parents' educational level and attitudes are certainly among them. The link is even more marked for girls than for boys.

140. Clearly the economic circumstances of the home are very influential: even in families of the same occupational level, the proportion of children reaching full-time higher education is four times as high for children from families with one or two children as from those where five or more children have claims on the family's resources. Thus a continuing growth in family incomes is likely to increase still further the demand for higher education. There is also a very important influence from the educational background of the parents (although this is, of course, related to their social class or occupation). As Table 22 shows, the proportion reaching full-time higher education is eight times as high among children whose fathers continued their own education to the age of eighteen or over as among those whose fathers left school under sixteen.* These facts suggest that, just as since the war more children have stayed on

TABLE 22
Percentage of children born in 1940/1 reaching full-time higher education:
by father's age on completing full-time education
Great Britain

	Full-time higher education		No full-time higher education	All children	Numbers (=100%)
	Degree-level	Other			
Father's age on completing full-time education					
18 or over	32	11	57	100	22,000
16 or 17	14	7	79	100	41,000
Under 16	2	3	95	100	491,000

Source: Survey of 21-year-olds. (See Appendix One, Part II, Section 2 for details.)

- Notes: 1. The table shows the proportions of children born in 1940/1 who had reached higher education by 1961/2.
2. For definition of degree level courses see note to Table 8.
3. The figures for total numbers in each group are population estimates based on the survey. The table excludes those whose fathers' ages for completing full-time education were not known.

* When a similar analysis is done in relation to the mother's educational level the differences are nearly as great as those shown in Table 22. (See Appendix One, Part II, Table 21.)

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at school for a full secondary education, so in turn more of their children will come to demand higher education during the 1970's. The desire for education will tend to spread as more and more parents have themselves received a fuller education.

141. This in itself is, of course, no guarantee that the quality of students will be maintained if there is an increased entry. There is, however, impressive evidence that large numbers of able young people do not at present enter higher education. Table 23 gives some of the results of a recent Ministry of Education survey of school leavers which, at our request, was extended to provide information on parental occupation and on performance at the age of eleven. Column 1 shows that, of grammar school leavers with a given measured ability at the age of eleven, the proportion obtaining the qualifications for entry to higher education varies widely according to their social background. Children of manual workers are on average much less successful than children of the same ability in other social groups. This is largely because they leave school earlier. A comparison of Columns 1 and 2 of the table shows that the proportion of

TABLE 23
Percentage of leavers from maintained grammar schools having 2 or more passes at
Advanced level : by grading in 11+ and father's occupation
England and Wales 1960/1

		Percentage		
		Percentage of leavers of all ages who have 2 or more 'A' levels (1)	Percentage of leavers of all ages who leave aged 18 and over (2)	Percentage of leavers aged 18 and over who have 2 or more 'A' levels (3)
Grading in 11+ Upper third ...	Father's occupation			
	Professional and managerial	57	55	79
	Clerical	44	39	74
	Skilled manual	38	40	77
Middle third...	Semi- and un-skilled ...	21	23	81
	Professional and managerial	33	42	63
	Clerical	18	29	56
	Skilled manual	18	27	59
Lower third ...	Semi- and un-skilled ...	10	15	58
	Professional and managerial	14	32	43
	Clerical	16	22	58
	Skilled manual	10	18	51
Transfer from secondary modern school ...	Semi- and un-skilled ...	4	7	53
	Professional and managerial	15	29	49
	Clerical	37	46	67
	Skilled manual	26	32	64
All groups at 11+ ...	Semi- and un-skilled ...	22	29	65
	Professional and managerial	11	17	56
	Clerical	24	31	65
	Skilled manual			
All children				

Source: *Statistics of Education*, 1961, Supplement to Part 2, Table 13. (See also Appendix One, Part II, Section 2.)

Future demand and places needed

children of manual workers who stay on to the age when the General Certificate of Education at Advanced level is normally attempted is smaller than the proportion of middle class children who actually achieve two passes at Advanced level. But as may be seen from Column 3 of the table those children who do stay on are on average as successful as children of the same ability in other social groups.

142. While the reserves of untapped ability may be greatest in the poorer sections of the community, this is not the whole of the story. It is sometimes imagined that the great increase in recent years in the numbers achieving good school-leaving qualifications has occurred almost entirely among the children of manual workers. This is not so. The increase has been almost as great among the children of professional parents, where the pool of ability might have been thought more nearly exhausted. In these groups the performance of children of a given measured ability has in fact continually improved.* The desire for education, leading to better performance at school, appears to be affecting children of all classes and all abilities alike, and it is reasonable to suppose that this trend will continue.

143. The quality of primary and secondary education and its organisation also affects the proportion of children who emerge as capable of entering higher education. Reductions in the size of classes, and the lengthening of the period of higher education for school teachers, should both tend to increase the number of those who achieve good qualifications at school. It is probable that courses leading to the General Certificate of Education will continue to become more widely accessible. The evidence suggests that the degree to which children experience an academic environment has a major influence on whether they make the best of their talents. Table 24, for example, shows how in 1960 the proportion of children going into the sixth form varied between areas of differing grammar school provision. Where the provision was liberal, some 12 per cent. of children stayed on, compared with only 7 per cent. in areas of relatively low provision.†

144. During the later 1950's, when this group of children reached the statutory school leaving age, there were comparatively few schools, other than grammar schools, that offered academic courses leading to the General Certificate of Education. Since then the number has been continually increasing and the habit of staying on may also be expected to grow.

145. Finally it should be observed that fears that expansion would lead to a lowering of the average ability of students in higher education have proved unfounded. Recent increases in numbers have not been accompanied by an increase in wastage and the measured ability of students appears to be as high as it ever was.‡

* See Appendix One, Part II, Section 2.

† The reasons for these differences are complex, and an attempt to unravel some of the factors involved is made in Appendix One, Part II, Section 3. That analysis, like Table 24, is based on a study carried out for us by the National Foundation for Educational Research.

‡ Moreover, as will be shown in Appendix Two (A), Part IV, the performance of manual working class students at university is as good as that of middle class students.

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TABLE 24
Percentage of children aged 17 at school in different types of local education
authority area: by grammar school provision and social class composition
England and Wales January 1960

England and Wales January 1960					Percentage			
					' Social class ' of the area			All areas
					High	Middle	Low	
Grammar school provision in the area								
High	...	...	...	...	14.5	10.6	10.7	12.3
Middle	...	...	...	...	10.8	9.5	7.9	9.5
Low	...	...	...	...	*	7.9	6.4	7.2

Source: See Appendix One, Annex Table M.2

Notes: 1. The categories used are:

(a) for grammar school provision, the percentage of 13-year-olds in grammar schools in 1955:

High ... 23.1% and over
Middle ... 18.1%-23.0%
Low ... Under 18.1%

(b) for social class, the percentage of occupied and retired males aged 15 and over in the Registrar General's Classes I and II in 1951:

High ... 22.1% and over
Middle ... 14.6%-22.0%
Low ... Under 14.6%

2. Each figure in the table is a simple (unweighted) average of the percentages found in all the authorities in the category in question.

3. In the category marked * there are only two authorities.

146. In short we think there is no risk that within the next twenty years the growth in the proportion of young people with qualifications and aptitudes suitable for entry to higher education will be restrained by a shortage of potential ability. The numbers who are capable of benefiting from higher education are a function not only of heredity but also of a host of other influences varying with standards of educational provision, family incomes and attitudes and the education received by previous generations. If there is to be talk of a pool of ability, it must be of a pool which surpasses the widow's cruse in the Old Testament, in that when more is taken for higher education in one generation more will tend to be available in the next.

The likely demand

147. Since there are no short cuts to estimating the number of those likely to be capable of pursuing a course of higher education, we must base our estimate of the number of places needed upon a scrutiny of the existing trends. As we have suggested, recent increases in the numbers qualified to enter higher education have a multitude of causes, such as growing national prosperity, improved educational standards among parents

Future demand and places needed

and better primary and secondary education. Appendix One discusses at some length how these trends are likely to develop in future. On the assumption of continued prosperity it seems highly probable that the proportion of the age group qualified for higher education will continue to grow as in the recent past.

148. Our method has been to project into the future past trends in the proportion of young people who obtain given qualifications in the General Certificate of Education and the corresponding Scottish examination, and then to make assumptions about the proportion who will apply for full-time higher education, and about the proportion of these applicants who should be admitted. We cannot of course tell what the school-leaving examinations will be in 1980. Nor, as we shall argue later, do we believe that the present examinations provide either a perfect guide to performance in higher education or the ideal background for potential entrants. But it would merely confuse the issue to attempt any quantitative judgment of the effect of possible changes in the nature of school-leaving examinations. For our present statistical task it is inevitable that future estimates should be expressed in terms of qualifications as they exist today.

149. The actual process by which we achieve our estimate of places needed for home students is complex and is specified in detail in Appendix One, Part IV. The separate stages of the calculation are as follows:

- (i) We first look at the size of the age groups relevant to higher education.
- (ii) Then we estimate what proportions of these age groups are likely to reach the level of attainment appropriate for entry.
- (iii) We next consider how many of those so qualified should be assumed to enter. This in effect involves two assumptions:
 - (a) how many will try to enter higher education (the application rate*);
 - (b) what proportion of applicants with given attainments should be given places (the degree of competition).
- (iv) Finally, we decide on assumptions about the future length of study.

150. Each of these stages involves difficulties, and the assumptions vary both in kind and in the confidence we have in making them. The first stage is reasonably firm up to 1980, in so far as the children are already born; after that we are dependent on estimates of future births, which may be proved wrong by events. The second stage is by far the most complex. As the detailed explanation in Appendix One shows, we have based ourselves as securely as possible on recent trends in the proportions of the age group staying on at school and gaining the various leaving qualifications, but there are many social and economic factors, as well as changes of educational policy, that may alter these trends in the

* The term 'application rate' is sometimes used to mean the number of applications per applicant, but it is not used in that sense in our Report.

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future. We must also emphasise that our projections are throughout based upon the continuation of present policies regarding student maintenance. Social and economic forces can also affect the application rate. The degree of competition and the length of course are largely matters of policy, and we believe that the assumptions we make are sensible and realistic.

151. We are confident that the order of magnitude of our projections is right. We believe that the estimates offered up to 1973/4 should be adopted as the basis for provision in the coming decade. The projections for 1980/1 are intended to form the basis for the long-term development of institutions, but they will of course need to be revised more than once before detailed plans for places in that year have to be adopted; and the figures that we show for an even later period, up to 1985/6, are merely to indicate the consequences that would result from extending beyond 1980/1 the assumptions we have used.

The size of the age groups

152. The first factor to be taken into account is, then, the size of the age groups. Table 25 shows the numbers likely to reach the age of eighteen up to 1980, with forecasts for succeeding years. As will be seen, the numbers will remain more or less constant until 1965, when they will rise by about a third, this being the effect of the high birth-rate after the last war. Over the following five years the numbers fall gradually back to their present level and then begin to rise again, until by 1980 they are beginning to approach once more their level in 1965.

TABLE 25
Number of 18-year-olds
Great Britain 1938-1985

		Thousands	
Mid-year 1938	908	Mid-year 1970	724
		1971	738
1955	642	1972	744
1956	654	1973	730
1957	653	1974	756
1958	637		
1959	606	1975	782
		1976	809
1960	654	1977	831
1961	714	1978	838
1962	752	1979	877
1963	739		
1964	747	1980	901
		1981	(933)
1965	963	1982	(944)
1966	862	1983	(951)
1967	803	1984	(955)
1968	766		
1969	743	1985	(960)

Source: Registrars General and Government Actuary's Department

Note: Figures for years after 1980 involve estimates of future births.

Future demand and places needed

*The output of qualified school leavers**

153. The second stage of our task concerns the proportion of the age group likely to achieve certain school-leaving qualifications. Irrespective of any changes that may occur by 1980 in the system of school-leaving examinations, we do not assume any significant reduction in the minimum level of attainment required of entrants to higher education as a whole.† We therefore need to estimate the numbers who will reach the equivalent of those qualifications which are now considered relevant for entry to higher education. There is, of course, at present a wide spectrum of qualifications held by entrants, ranging (in England and Wales) from three or four passes at the Advanced level of the General Certificate of Education, held by many entering universities, to five passes at Ordinary level held by some students entering Training Colleges. Our estimates are made separately for each level of qualification at present found among those who enter higher education.‡

154. As Table 26 shows, about 7 per cent. of the age group in 1961 obtained a level accepted as the minimum university entrance qualification, the proportions being almost identical in England and Wales and in Scotland.§ From 1954 to 1961 (the latest year for which data are available), the proportion grew steadily by an average addition each year of 0.37 per cent. of the age group in England and Wales, and the same in Scotland.|| We have already referred to the influences underlying these increases and the evidence suggests that the growth will continue with undiminished force. After consultation with the Ministry of Education we have therefore assumed that in England and Wales the proportion of the age group obtaining these qualifications will continue to grow up to 1980 by annual increments nearly as large as the average since 1954.¶ Thus by 1980 the proportion will be 12.9 per cent. For Scotland we assume, after consultation with the Scottish Education Department, that the proportion obtaining university entry requirements will by then be 11.6 per cent., the slower rate of growth in Scotland being explained by the different pattern of schooling and examinations. A further discussion of these projections, together with the detailed calculations for each level of attainment, may be found in Appendix One.

* The term 'qualified school leavers' refers to the numbers obtaining each level of school leaving qualification (for example, 2 'A' level passes in the General Certificate of Education, 1 'A' level pass, 5 or more 'O' level passes but no 'A' level passes) which at present satisfy entry requirements for each form of higher education. The term includes those who obtain their qualifications after leaving school.

† See also paragraph 156.

‡ In Scotland data are not at present available on performance in the new Scottish Certificate of Education. In order to make forecasts based on past trends it is necessary to think in terms of passes at the Higher and Lower grades of the Scottish Leaving Certificate.

§ The qualifications in England and Wales were two or more 'A' level passes and in Scotland at least three Higher and two Lower grade passes.

|| This represents an increase of over a half in seven years.

¶ We make the same assumption about passes at Ordinary level (see Appendix One, Part IV, Section 3). In this case the rate of growth has been slightly less.

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TABLE 26
Percentage of the age group obtaining school leaving qualifications
Great Britain 1961

							Percentage		
							Boys	Girls	Boys and girls
England and Wales (General Certificate of Education)									
<i>'A' level passes</i>									
3 or more ...	...	...	...	...	...	...	5.9	2.9	4.4
2 ...	...	...	...	...	...	...	2.8	2.2	2.5
1 ...	...	...	...	...	...	...	2.0	2.2	2.1
<i>'O' level passes only</i>									
5 or more ...	...	...	...	...	...	...	6.2	8.5	7.4
1-4 ...	...	...	...	...	...	...	12.3	11.2	11.7
Scotland (Scottish Leaving Certificate)									
At least 3 Higher passes and 2 Lower passes ...							7.4	6.1	6.8
At least 2 Higher passes and 3 Lower passes, but less than the above ...							1.6	2.2	1.9

Source: See Appendix One, Part I, Tables 2 and 17

- Notes: 1. All figures include an allowance for passes obtained by young people after leaving school.
2. The definition of the age group is given on page 12.

The application rate

155. We have now to make assumptions about the proportion of those with each relevant level of attainment who will apply for higher education, and the proportion of those applicants who should be admitted. At present there is little information on the numbers who apply. The Universities Central Council on Admissions will in due course be able to show what proportion of qualified applicants for entry in October, 1963 failed to secure a place. But at present the only recent information relating to university applications comes from a survey conducted by the Association of University Teachers. On the position in Training Colleges there is information from the Central Clearing House of the colleges. Both sources of information have revealed considerable numbers of applicants with minimum entry qualifications who failed to find a place.*

156. For purposes of estimating the demand for places, however, none of the information on applications is sufficiently comprehensive. We have therefore to make direct assumptions about the proportion of qualified young people who enter higher education. Chart C shows the proportions in England and Wales as they were in 1961, and details both for England and Wales and for Scotland are shown in Tables 27A and 27B. In order to judge what proportions should be assumed for the future we have to judge, first, what changes may occur in the application rate and, second, what changes are desirable in the degree of competition. Our view on the second of those points can be stated very briefly. In recent years there has

* See Appendix One, Part IV, Section 5.

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been an increasing degree of competition for entry, not only to universities, but also to Training Colleges. We think it most undesirable that this pressure should increase further. Indeed, as we shall point out in Chapter XI, we think it should be reduced in certain sectors of higher education. But the present chapter is concerned with higher education as a whole, and in a system where almost all home students are assisted from public funds

TABLE 27A
Percentage of qualified school leavers entering different sectors of higher education
Children from England and Wales 1961

Children from England and Wales 1961						Percentage	
	Full-time higher education				Part-time higher education, and private study	No higher education	All children
	University	Teacher training	C.A.T.s	Other further education			
Passes in General Certificate of Education							
BOYS							
'A' levels							
3 or more ...	80	4	4	4	6	2	100
2 	26	13	8	11	41	1	100
1 	2	17	5	18	50	8	100
'O' levels only							
5 or more ...	—	8	1	3	49	39	100
GIRLS							
'A' levels							
3 or more ...	68	16	1	2	—	13	100
2 	17	41	1	5	3	33	100
1 	—	39	—	6	3	52	100
'O' levels only							
5 or more ...	—	16	—	1	1	82	100
BOYS AND GIRLS							
'A' levels							
3 or more ...	76	8	3	3	5	5	100
2 	22	25	5	8	25	15	100
1 	1	28	3	12	26	30	100
'O' levels only							
5 or more ...	—	12	1	2	21	64	100

Source: See Appendix One, Part 1, Table 14

- Notes: 1. With part-time higher education is included private study (by correspondence course or otherwise) at the level of higher education.
 2. The table shows entrants to full-time study in 1961 expressed as a percentage of the output of qualified school leavers in 1961, and entrants to part-time study as a percentage of output in the relevant earlier years. The percentage with no higher education is a residual.
 3. As pointed out in Chapter I, training for many occupations open to girls is not included in the definition of higher education.

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it is inevitable that there should be some degree of selection, and hence some degree of competition for entry. Moreover, we are anxious not to overstate the number of places needed. For these reasons our estimates do not allow for any relaxation of the degree of competition.* It follows that the number of places for entrants should be assumed to rise at the same rate as the number of qualified applicants.

TABLE 27B
Percentage of qualified school leavers entering different sectors of higher education
Children from Scotland 1961

	Percentage					All children
	Univer- sity	Teacher training	Further educa- tion	Part- time higher educa- tion	No higher educa- tion, or private study only	
Passes in Scottish Leaving Certificate						
BOYS						
At least 3 Highers and 2 Lowers	70	2	9	13	6	100
At least 2 Highers and 3 Lowers but less than the above	45	7	12	20	16	100
GIRLS						
At least 3 Highers and 2 Lowers	47	27	14	1	11	100
At least 2 Highers and 3 Lowers but less than the above	6	73	11	—	10	100
BOYS AND GIRLS						
At least 3 Highers and 2 Lowers	60	13	11	7	9	100
At least 2 Highers and 3 Lowers but less than the above	23	45	11	9	12	100

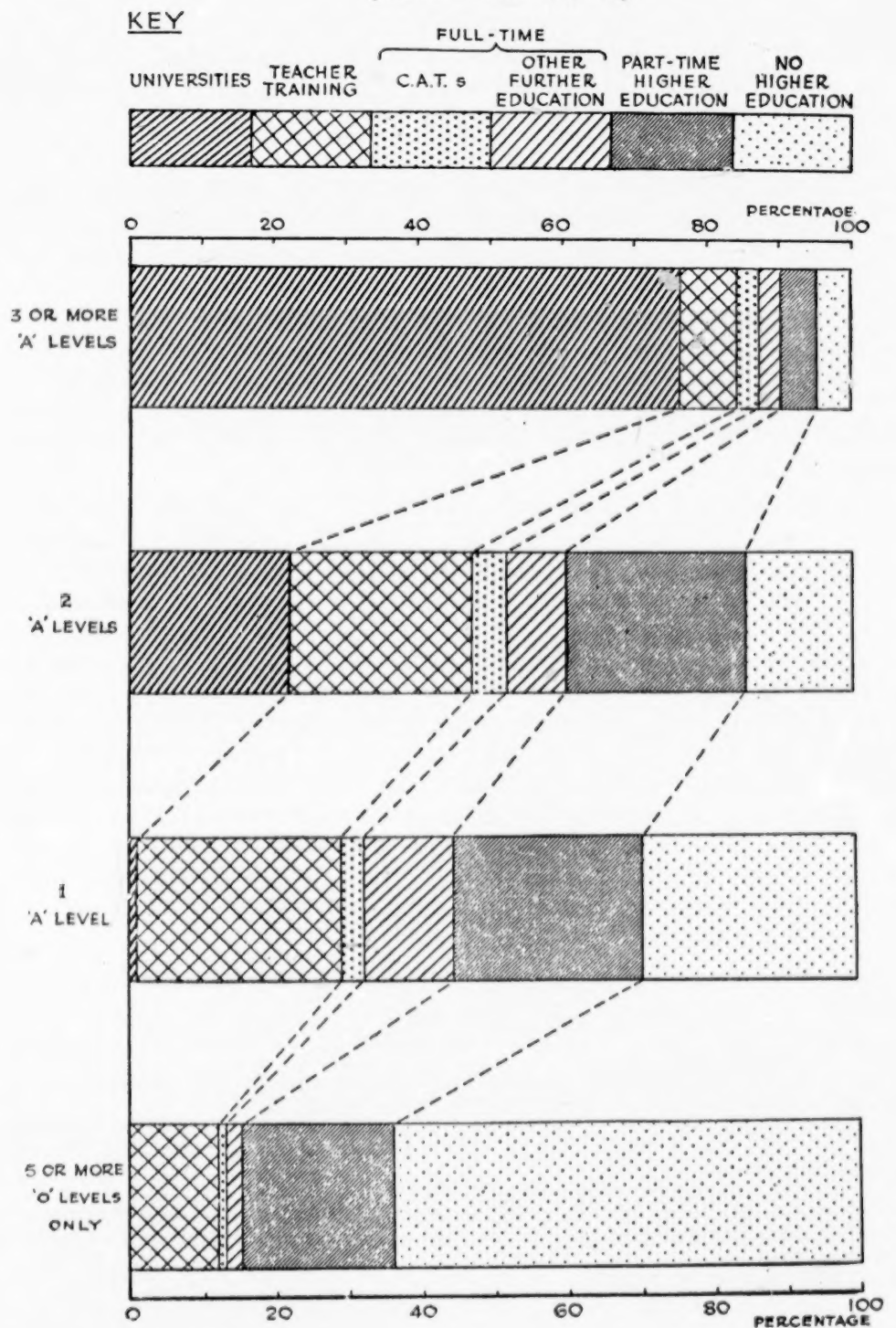
Source: See Appendix One, Part I, Table 23

- Notes: 1. Part-time higher education excludes private study, since no data are available.
2. See Notes 2 and 3 to Table 27A.

* There will of course be a considerable expansion of full-time post-school education at lower levels as well as the expansion we recommend in higher education.

CHART C

PERCENTAGE OF SCHOOL LEAVERS WITH EACH QUALIFICATION ENTERING DIFFERENT SECTORS OF HIGHER EDUCATION
CHILDREN FROM ENGLAND AND WALES 1961
(BOYS AND GIRLS)



Source: Table 27A

Note: See notes to Table 27A.

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157. There is no easy way of estimating how the application rate will change in the future. For example, the number of applicants might diminish in the near future as a result of frustration, if adequate places are not provided and a large number of suitable applicants is seen to be rejected. In the longer term the relative rewards for the skills resulting from higher education might fall perceptibly, although there is no evidence of such a fall up to now. And again, a system of student finance less generous than the present system might well deter some applicants: this last point is of critical significance and it must be borne in mind throughout that our projections assume a continuation of present policies on assistance to students.*

158. On the other side, there are many factors that could lead to an increase in the application rate for full-time higher education. It seems most probable that the social esteem in which higher education is held will continue to grow. Experience, overseas, for example in Sweden and the United States† has been of a steady growth in the proportion of qualified school leavers who want to enter full-time higher education. In this country, increasing proportions of those who obtain passes in the General Certificate of Education at Ordinary level have gone on to obtain passes at Advanced level,‡ and it seems reasonable to expect that a growing proportion of those who obtain Advanced level passes will wish to go on to higher education.

159. In consequence it is likely that a good many of those who now enter part-time higher education will in future seek full-time higher education. This applies particularly to those boys who at present take part-time courses in further education or correspondence courses leading to professional qualifications. At present much professional education for engineering and commercial occupations is part-time.§ As knowledge grows, and a grasp of fundamental principles becomes ever more important, we would expect the need for full-time study to be increasingly recognised.|| Moreover, many professions are recruiting, and welcoming, an increasing proportion of graduates—not all of whom are graduates in the related professional field. As the last paragraph implies, the pressure for a switch to full-time study will not come only from employers: our survey of students in further education showed that a majority of those now studying part-time would prefer full-time courses.¶ Given prosperity, many more of them will be able to take such courses.

160. Training for many of the occupations open to girls does not at present fall within the definition of higher education adopted in our Report. But rising professional requirements may in future lead to more girls entering

* A description of present arrangements will be found in Appendix Two (A), Part VI.

† Information will be found in Appendix Five, Par.s VIII and X.

‡ In 1954, 37 per cent. of school leavers with five or more passes at Ordinary level had gone on to obtain two or more passes at Advanced level. By 1961 this proportion had risen to 40 per cent.

§ Details will be found in Appendix Two (B), Part V.

|| In Appendix One, Part IV, we make an estimate of the future demand for part-time higher education and of the extent to which its growth will be affected by a switch to full-time study.

¶ See Appendix Two (B), Part III.

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those occupations by means of full-time courses in higher education. Moreover, we discuss in later chapters various developments in higher education—such as new language courses—that may prove particularly attractive to girls. Many who now undertake no further studies after leaving school, despite their possession of the necessary qualifications, may in future wish to do so.

161. For all these reasons we think that, on balance, the extent to which school leavers with the various kinds of entry qualifications will apply for higher education is likely to grow. It is extremely difficult to assess this effect, but after consulting the Education Departments we think it reasonable to assume that, by 1980/1, the application rate will be 10 per cent. higher than now. In terms of Table 27A above, this implies, for example, that whereas 60 per cent. of those with two passes at Advanced level in the General Certificate of Education at present enter full-time higher education, the proportion will reach 66 per cent.; and, whereas at present 15 per cent. of those with no Advanced level passes but with five or more passes at Ordinary level enter, 17 per cent. will do so in future.

162. When may this increase occur? The most straightforward assumption would be that it will occur gradually and at a steady rate. But to some extent the timing may be influenced by policy, and there are two reasons against assuming a steady rate of growth. The first is demographic. Between now and 1980 there are two periods when the size of the age groups will of itself require a rapid increase in the provision of higher education; the first of these is in the middle 1960's, and the second in the later 1970's. In neither of these periods will it be easy for the system of higher education to accommodate applications from a rising proportion of qualified school leavers, and if the places cannot be provided this will tend to restrain a developing trend. On the other hand, between these periods of difficulty the size of the relevant age groups falls steeply for a time and, even if the places provided for entrants to higher education grew less rapidly than they will need to do up to 1968, it would still be possible to accommodate a rising proportion of school leavers.

163. Secondly, as Appendix One shows, the need for school teachers will require a particularly rapid expansion of provision in higher education at the end of the present decade. In England and Wales, unless it were assumed that the proportion of qualified school leavers entering universities and further education should fall well below its present level, the expansion of the Training Colleges needed to staff the schools can only be achieved if there is a rapid increase between 1968 and 1972 in the overall proportion of qualified school leavers who apply for, and enter, higher education.

164. We have therefore assumed that the proportion of qualified school leavers entering higher education will remain at its 1961 level until 1967 and rise by 2 per cent. in 1968 and in each succeeding year up to 1972, so that by then it is 10 per cent. higher than in 1961; thereafter it will be constant. It is to be hoped that the additional entry during this period will result from a general rise in the application rate, affecting the more highly qualified school leavers as well as the others: Table 27 showed

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that there are ample reserves of qualified young people who do not at present enter full-time higher education. If this hope were disappointed, it might mean that in the period around 1972 the Training Colleges in England and Wales—for it is here that the additional students are needed—would not obtain the same proportion of well qualified entrants as they have achieved in recent years. The issue is discussed more fully in Appendix One: all that we need stress here is that such an eventuality need not in fact occur. Given underlying trends, it may well be possible to achieve the expansion needed during this period without a lowering of student quality. And we are confident that in the later 1970's the quality of entrants will be as high as at present.

The length of study

165. We have also to decide what assumption to make about the average length of study in the future. In Chapter VIII we discuss the length of the undergraduate course in universities and decide against a general lengthening. But we consider it both probable and desirable that there should be an increase in the proportion of students who go on beyond the first degree. There are two reasons for this, both discussed more fully in Chapter VIII. The first is the need in many faculties for more postgraduate study and research. Second, we have to take account of the Government's declared policy that training should eventually become compulsory for graduates intending to teach in schools. For these two reasons we assume a more than proportionate increase in the number of students doing postgraduate work.* At the same time, however, the average length of undergraduate course is expected to shorten slightly because, on the information we have received, the proportion who take medical subjects will fall by half by 1980.† Their courses last five to six years and the decreasing proportion reading these subjects will mean a consequent reduction in the average length of undergraduate courses.

166. In Colleges of Advanced Technology and in further education we allow for a modest increase in the length of study, since in the developing institutions an increasing proportion of the work will be of degree level and expansion of postgraduate work is to be desired.‡ If the present level of wastage§ is reduced, this will lead to a further increase in the number of places beyond that for which we have allowed. In Training Colleges, for reasons explained in Chapter IX, we have allowed for a progressive growth of four-year courses from the late 1960's onwards, so that by 1980 about a quarter of the entrants are taking a four-year course.

* The details are set out in Chapter VIII. As is shown there, the net effect of these changes is to add some 15,000 to the number of places in universities that would result from a proportional increase in postgraduate numbers.

† The University Grants Committee suggests that the number of students reading medical subjects may rise from 16,500 in 1961/2 to 21,000 in 1980/1—a far slower increase than that recommended for higher education as a whole.

‡ See Chapter X, paragraphs 396 and 432.

§ See Chapter XIII and Appendix Two (A), Part IV.

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The total number of places for home students

167. The results of these various calculations appear in Table 28, which shows the minimum number of home students in all forms of full-time higher education for whom it is necessary to plan.

TABLE 28
Number of home students for whom places will be needed in full-time higher education
Great Britain 1962/3-1985/6
Thousands

1962/63	...	...	...	...	...	195
1965/66	...	...	...	...	...	262
1970/71	...	...	...	...	...	312
1975/76	...	...	...	...	...	396
1980/81	...	...	...	...	...	507
1985/86	...	...	...	...	...	(632)

Source: See Appendix One, Part IV, Section 9, and Annex Z

Note: The figure for 1962/3 shows the actual number of students (provisional data).

168. These figures involve what to many will seem a startling increase in numbers, and we must therefore repeat that they make no allowance for any relaxation in the standards required to gain places: if there are 507,000 places in 1980 this will make provision only for students not one whit less eligible in terms of school leaving attainments than those being admitted today. The estimates reflect chiefly the growth in the age groups (requiring some 50,000 more places), and in the proportion of the age group qualifying for entry (this will call for 190,000 more places). They also allow about 45,000 more places for the extra proportions we expect to apply, and about 25,000 more places for modest increases in the average period of study.

169. That these numbers are only the bedrock on which policy should be based is confirmed by referring again to the implications of our assumptions about the degree of competition. The present standards, both in universities and in Training Colleges, are, by common consent, considerably higher than the standards of the 'thirties and are almost certainly higher than those of the early 'fifties. In the 'thirties many students entered with qualifications below the present minima: in the early 'fifties the minimum qualifications were generally the same as at present, but a higher proportion of those who possessed them were admitted. Yet it would be difficult to contend that the number receiving higher education in those decades contained an undue proportion of students incapable of substantial benefit from the process.

170. Above all, our projections may not have allowed sufficiently for any increased tendency of children, and especially of girls, to stay on at school so as to seek entry to higher education. At the present time in England and Wales, only six girls obtain two or more passes at Advanced level in the General Certificate of Education for every ten

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boys who do so; in Scotland the equivalent ratio is eight girls to ten boys. Moreover, over the last few years the proportion of boys staying on has if anything risen more sharply than that of girls. It seems possible that the tendency for girls to stay on may gain momentum, and this might become a major feature of the future educational scene. We should greatly welcome a tendency for more girls to stay on at school, if only from the national point of view of making better use of what must be the greatest source of unused talent at a time when there is an immediate shortage of teachers and of many other types of qualified person. If staying-on increases faster in the future than in the past, to that extent our estimates of places will prove too low.

171. We started this chapter by stressing that our estimates were inevitably attended by uncertainties and the possibility of error. We have tried to base them on as secure a statistical foundation as possible and have explained our assumptions at various stages. We are confident that the projections give the right order of magnitude, and that they are if anything on the conservative side. The result shown in Table 28 will mean that by 1980 this country should be providing entry to full-time higher education for about 17 per cent. of the age group. This is only half the proportion of young people who at present enter full-time higher education in the United States. We have no figures that would entitle us to make comparisons with what they and other leading countries will be providing by 1980. But, if the plans of other countries for the years up to 1970, discussed in the last chapter, give any guide, our targets will only be in line with what is likely to happen elsewhere.

PLACES FOR OVERSEAS STUDENTS

172. The provision of places for students from overseas raises different questions, and estimates in this area are more speculative than those we have so far discussed. At the present time some 10 per cent. of the places in full-time higher education are occupied by such students (see Table 29).

TABLE 29
Overseas students as a percentage of all full-time students
Great Britain 1961/2

	Percentage
University	
Undergraduates	7
Postgraduates	32
All students	12
Teacher training	2
Further education (advanced)	15
All full-time students	10

Source: See Appendix Two (A), Part VII

173. The presence here in institutions of higher education of students from abroad is widely regarded as valuable, and rightly so in our judgment. It fosters a sense of international community on both sides. It encourages a valuable give-and-take. The connections to which it gives rise are not

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without their diplomatic and economic advantages; and where students from developing countries are concerned it provides a helpful contribution to their country's advancement. We should greatly regret a dwindling in the number of overseas students in Britain's universities and colleges.

174. But it is not sufficiently recognised that, with fees at their present level, provision for overseas students costs the taxpayers of this country a very substantial amount. Even when the student pays his own fees, as most of them do, the net recurrent cost of each to the public purse is on average about £450 a year*; the total annual subsidy involved amounts at the present time to something like £9 million.

175. In our judgment this expenditure is well justified. It is a form of foreign aid that has a definite objective and yields a tangible return in benefit to the recipients and in general good will. It is, however, an open question whether the aid is best given by subsidising fees; and it is a further question to what extent Parliaments of the future will permit it to grow without limit. This is one of the factors we take into account in Chapter XIV in our discussion of the future level of fees.

176. We have tried to obtain estimates of the probable demand from abroad and thus to supplement argument on the number of places needed with an informed view on the number of places that would be wanted if they were available. It has proved impossible to obtain adequate estimates even for the other countries in the Commonwealth, although we have been assured that if the same proportion of places were provided in 1980 as today there would be no shortage of worthy applicants for what was available.

177. All this makes extrapolation in this field a more than usually hazardous process. We are not able to say on our present knowledge what is the most probable course in the future, though we think it is likely that in universities an increasing proportion of overseas students will be post-graduates and a decreasing proportion undergraduates.†

178. The most sensible course seems to be to assume that the present proportions continue (an assumption which implies a growth from 20,000 in 1962/3 to about 50,000 in 1980/1), and this has been done in arriving at the overall numbers. It is in line with the suggestions made to us by the Foreign Office, the Department of Technical Co-operation, the British Council and the Education Departments.

TOTAL NEED FOR PLACES

179. Aggregating the home demand with the figure thus reached for overseas students, we recommend that the minimum numbers of places to be provided in successive years should be those shown in Table 30. To set the recommended development in perspective, Table 30 also gives the number of places in selected past years. The absolute growth in numbers is presented graphically in the first part of Chart D; and the rate of growth is presented in the second part of the chart.

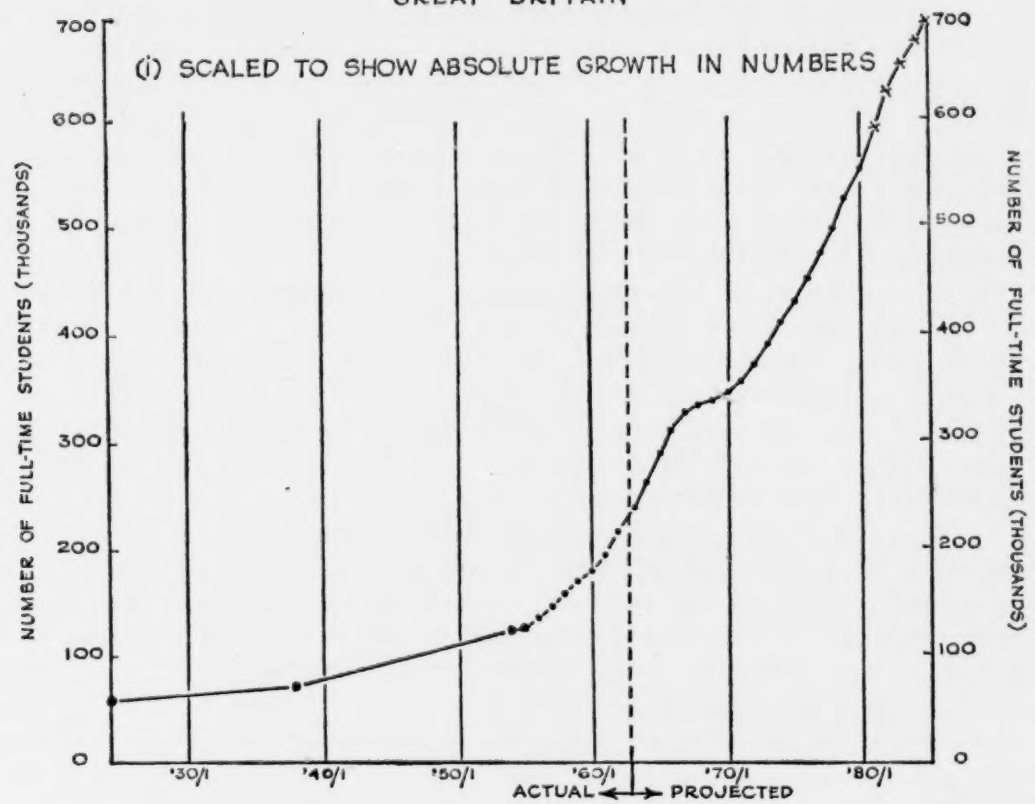
* Appendix Four, Part IV, Tables 17 and 18 show the total current cost to public funds of teaching, research and administration, divided by the number of students (home and overseas). Fees paid by overseas students have to be deducted from the figures of costs per student shown in those tables.

† For a more detailed discussion of the present position see Appendix Two (A), Part VII.

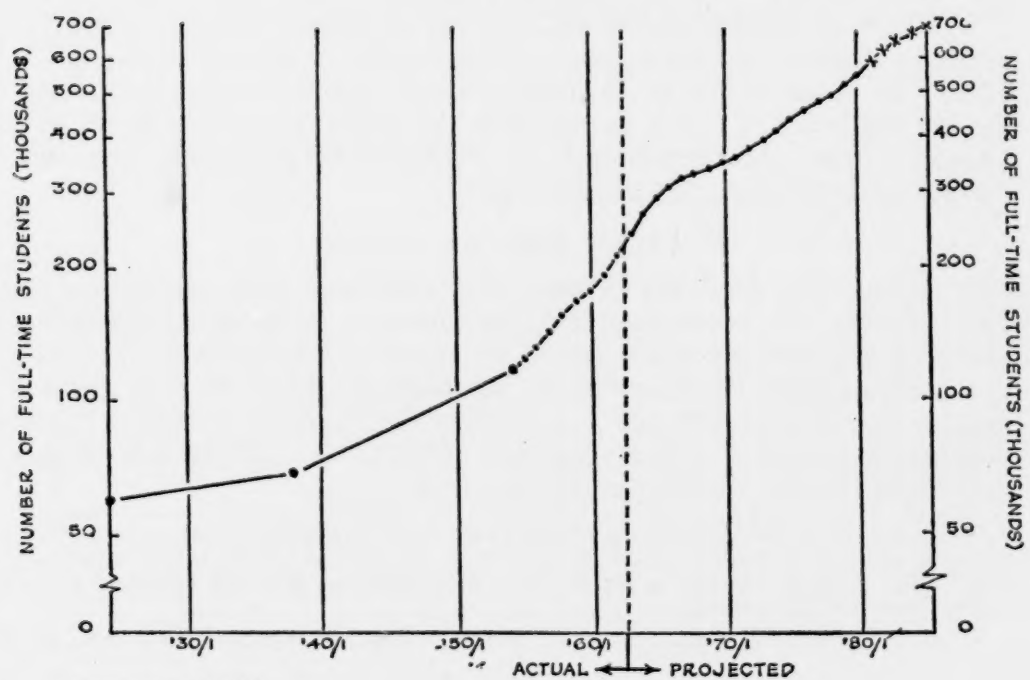
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CHART D

STUDENTS IN FULL-TIME HIGHER EDUCATION
GREAT BRITAIN



(ii) SCALED TO SHOW RATE OF GROWTH IN NUMBERS



Source: Table 30

Notes: 1. For the years before 1954/5, data are given only for 1924/5 and 1938/9.
2. See notes to Table 30.

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TABLE 30
Home and overseas students in full-time higher education: past trends and future needs
Great Britain 1924/5–1985/6

						Thousands
1924/25	...	...	...	...	...	61
1938/39	...	...	...	...	...	69
1954/55	...	...	...	...	...	122
1955/56	...	...	...	...	...	128
1956/57	...	...	...	...	...	137
1957/58	...	...	...	...	...	148
1958/59	...	...	...	...	...	160
1959/60	...	...	...	...	...	170
1960/61	...	...	...	...	...	179
1961/62	...	...	...	...	...	193
1962/63	...	...	...	...	...	216
1963/64	...	...	...	...	...	238
1964/65	...	...	...	...	...	262
1965/66	...	...	...	...	...	290
1966/67	...	...	...	...	...	312
1967/68	...	...	...	...	...	328
1968/69	...	...	...	...	...	335
1969/70	...	...	...	...	...	339
1970/71	...	...	...	...	...	344
1971/72	...	...	...	...	...	356
1972/73	...	...	...	...	...	372
1973/74	...	...	...	...	...	392
1974/75	...	...	...	...	...	412
1975/76	...	...	...	...	...	433
1976/77	...	...	...	...	...	453
1977/78	...	...	...	...	...	475
1978/79	...	...	...	...	...	499
1979/80	...	...	...	...	...	528
1980/81	...	...	...	...	...	558
1981/82	...	...	...	...	...	(596)
1982/83	...	...	...	...	...	(627)
1983/84	...	...	...	...	...	(655)
1984/85	...	...	...	...	...	(678)
1985/86	...	...	...	...	...	(697)

Source: 1924/25–1938/39: See Appendix One, Annex EE
1954/55–1985/86: See Appendix One, Part IV, Tables 46 and 53,
and Annex Tables Z. 16 and Z. 17

- Notes: 1. Figures for 1924/25 and 1938/39 are estimated.
2. Figures for 1954/55 to 1962/63 represent actual numbers (1962/63 data being provisional).
3. Figures for 1963/64 to 1980/81 are recommended.
4. Figures for 1981/82 to 1985/86 are estimates of places likely to be needed but are not put forward as recommendations.

180. These figures cover the next seventeen years, with provisional estimates for five years more. As we shall argue in later chapters, those for the next ten years, up to 1973/4, demonstrate the need for urgent action. They

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are thus the basis for an immediate commitment of effort and resources. But, as we have said, the estimates for 1980/1 and later years are not of this nature. By the time the detailed plans for this period have to be made, further data will be available on the output of qualified school leavers and on all the other steps in our calculation. We express our deep conviction that any future estimates of need should proceed from our own basic principle that all who are qualified to pursue full-time higher education should have the opportunity of doing so. But in the nature of things it is inevitable that an estimate of needs for 1980/1 made in, say, 1970 will give an answer that differs in greater or lesser degree from one made today.

181. Yet none of this lessens the importance of our estimates for 1980/1. They demonstrate, first, that the problems of the next ten years will not be symptomatic of a passing crisis to be met by temporary expedients: they will rather mark the dawn of a new era in British higher education. Secondly, they provide the sense of scale, which is indispensable to any discussion of the future pattern of institutions. The provision postulated for 1980/1 is over two-and-a-half times as high as in 1962/3. It is significant that to provide places on this scale would not involve a rate of growth as high as during the last seventeen years: in the period since the last war the number of those in higher education has already more than trebled. But the resulting number of places is so large in total that it requires a great feat of imagination to envisage the problems and the opportunities it will provide.

IMPLICATIONS FOR THE ECONOMY AND FOR SOCIETY

182. The expansion we recommend will bring with it a very extensive transformation of the social and economic picture. As we have already pointed out, it will not enable a higher proportion of the age group to receive higher education in Britain than already receive it in some other countries, but cumulatively it will mean a most extensive change in the stock of men and women in the working population who have had higher education. For the production of trained manpower is like the production of long-lived capital goods: even after output has ceased to rise a constant flow of new graduates will for many years mean a net addition to the total stock. The magnitude of the growth in eventual resources cannot be judged only by comparing future output with that of the present day, since the present labour force reflects the output of pre-war years as much as of the period of expansion since the war.

183. Our point can be seen vividly if we return to the actual figures implied by our recommendations. If the proportion of students who successfully complete their courses remains constant, then the proportion of the working population who have completed full-time higher education will rise from 3.4 per cent. in 1960/1 to 6.2 per cent. by 1980/1.* And even if there is no further increase in the percentage of the age group

* See Appendix Four, Part V. The proportion of the working population with all higher education (either full-time or part-time or by private study) will rise from 5.0 per cent. in 1960/1 to 9.7 per cent. in 1980/1.

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entering full-time higher education after 1980, it will go on increasing for some time afterwards and will reach 15 per cent.* towards the end of the first quarter of the twenty-first century.

The demand for manpower

184. How does so substantial an increase fit in with our conception of future needs? If this proportion of the population is to receive higher education, what assurance is there that there will be a need for their services? In essence, we have calculated the number of places that should be provided in higher education in terms of the demand from qualified applicants. Can we not make corresponding estimates of the eventual demand for their services? Can we look at the main occupations and ask what numbers will be required in each at successive intervals of time?

185. Such questions raise problems more complicated than those we have considered so far in this chapter. We have no doubt that in a modern community such as ours there is a need for at least these proportions of citizens with higher education. But 'need' in this sense is a term that cannot be given great precision: there are difficulties in making quantitative projections of needs which, with the information at our disposal, we have not found it possible to surmount.

186. Let us say at once that the difficulties to which we refer are least troublesome in making estimates of particular needs that are the result of particular policies. If one is thinking, for instance, of the need for teachers in schools maintained from public funds, then on the basis of assumptions regarding numbers of children, size of classes and so on at various dates it is possible to construct a projection of the number of teachers needed to achieve the stated objectives. Estimates of this kind have been made by the advisory bodies of the Ministry of Education and the Scottish Education Department† and a more recent exercise of a similar kind has influenced our recommendations in this Report.‡ Similarly, on the basis of assumptions regarding future student numbers and student/staff ratios, we have made estimates of the number of teachers in higher education who will be needed if these assumptions are fulfilled. Estimates of the same kind could be made of the needs for various kinds of technicians and others in public employment, always provided that public policy is assumed to continue unchanged or that specific allowance is made for changes of policy.

187. More serious difficulties begin to arise if we try to project the need, in the sense of quantity demanded at a price or salary rate, of services bought and sold throughout the economy as a whole. An example is the demand for scientists and technologists. Here, as a first approximation, it is possible to inquire of existing employers how many such persons they

* If an addition is made for those who have completed part-time higher education including private study, the total will be 19 per cent.

† See, for example, *The Demand and Supply of Teachers 1960-80*, Seventh Report of the National Advisory Council on the Training and Supply of Teachers (H.M.S.O., 1962).

‡ See Chapter XI. The estimate is described in Appendix One, Part IV, Section 6.

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would be prepared to employ on present expansion plans at different dates in the future, and on the basis of their answers to draw up a table of requirements.

188. But such estimates have limitations. First, they necessarily assume the present techniques of production. Over short periods, this may not involve many inaccuracies. But who knows how conditions will change over periods of ten or twenty years—our preoccupation here? In the last fifteen years, for instance, developments in electronics have brought about changes in the demand for the skills and the products concerned that it would have been impossible to foresee at the beginning of the period.

189. Secondly, these estimates are necessarily confined to the technical uses of the specific skills concerned. But, to continue our example of the demand for scientists and technologists, persons with this kind of training are often employed for less vocational purposes. The 1961 Census of Population showed that some 50,000 scientists and technologists, out of a total of about 260,000, were in categories of employment in which it is unlikely that they were making full and direct use of their qualifications.* What is true of scientists and technologists, with their very specialised training, is even more true of many others who complete courses of higher education. The area of their employment is not something determined by purely technical considerations; and this makes projections of future demand very much more difficult.

190. Finally, still considering estimates of demand for particular types of qualifications, we have to recognise that demand in this sense depends essentially upon prevailing rates of pay. Predictions of future demand for doctors, engineers, scientists and so on that appear in contemporary discussions either assume that such rates will remain unaltered or make no assumption on this point. This may be justified when the projection refers to a relatively short period. But for periods of the length we are concerned with it is clearly invalid. The amount of specialised talent of any kind that is likely to be demanded at one rate of remuneration will differ from that which will be employed at rates perceptibly different. To make estimates which take such factors into consideration would require information that is not forthcoming at present.

191. All these difficulties are present when the problem is simply to make forecasts of the demand for single types of skill over long periods. But they are still more formidable in forecasting demand for highly qualified manpower in general. This is not a matter of simple aggregation of particular forecasts: the entire future movement of the economy is involved, both internally and in relation to the almost infinite possibilities of change abroad, and the inter-relationships of the different variables are of a degree of complexity that so far has defied practical solution. It may be that, in time to come, ways may be discovered of making projections of this

* There is a useful discussion of the implications of this on future estimates in the latest report of the Advisory Council on Scientific Policy, *Scientific and Technological Manpower in Great Britain, 1962* (Cmd. 2146, 1963).

sort, and we hope very much that research into these difficult problems may be part of the duties of the regular machinery that we shall propose for continuous statistical investigation.* But, pending such developments, we have not found it practicable to make trustworthy estimates of the aggregate demand for the products of higher education twenty years hence, and our recommendations for the provision of places are based essentially on estimates of potential supply.

192. We should be very sorry, however, if our inability to present quantitative estimates of the future demand for highly qualified manpower were to give the impression that in our view there is nothing to be said about the need for educated people in a modern community. In Chapter XIV we discuss at some length higher education in its aspect of national investment. Meanwhile we wish to state unequivocally that—always provided that the training is suitable—there is a broad connection between the size of the stock of trained manpower in a community and its level of productivity per head. Doubtless there is some ambiguity here. For it is certainly true that the richer a community the more education it wants and can afford. But if productivity is to advance at anything like the rate now deemed desirable there is a strong presumption that a substantial increase in the proportion of the population that is both skilled and versatile will be necessary. And in modern societies the skills and the versatilities required are increasingly those conferred by higher education. Indeed, unless this country is prepared to expand higher education on something like the scale we recommend, continued economic growth on the scale of the targets set by the National Economic Development Council is, in our view, unlikely to be attainable. It is easy to think of an over-production of particular kinds of expertise, difficult as it may be to predict it. But we may be fairly confident that the Government would have to go much further than anything our present projections indicate before the country was over-supplied with trained talent in general. The increase by 1980 in the proportion of the working population who have received higher education may appear considerable, if Great Britain is viewed in isolation. But in the United States the proportion of the working population so educated (about 9 per cent.†) is already as high or higher than the figures quoted in paragraph 183. And when it is remembered that the other advanced countries of the world are all tending in the same direction, the risk still seems to be of too little higher education rather than too much.

193. Clearly, however, the expansion we are recommending is likely to bring about many changes in the present pattern of society. The very fact that there will be more persons available with types of training that have been relatively scarce in the past may indeed imply changes in the relative income structure. Nor would we claim that, even with a growing population and national income, there will be an infinite extension of demand in particular occupations; as we have explained already, with

* See Chapter XVII, paragraphs 805 and 806, and Appendix Four, Part II.

† A discussion of the stock of people with higher education in the United States will be found in Appendix Five, Part X.

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present techniques it is difficult to look ahead in this respect for more than a few years at a time. All that we would claim is that, in the absence of artificial obstacles to mobility, and with educational methods which aim to impart basic principles rather than narrow skills in specialised fields, provision for the numbers we recommend carries little risk of over-production.

194. We are reinforced in our conclusion by recollection of a conversation with the authorities in the Soviet Union. In the Soviet system of planning much reliance is placed upon projections of manpower requirements, and these are made on a most ambitious scale. When we indicated our difficulties in understanding how, with all the uncertainties as regards invention and the advancement of knowledge generally, reliance could be placed on statistics of requirements for more than a very few years ahead, we were met with the reply that in the Soviet Union there would always be use for people who had been trained to the limit of their potential ability. We do not believe that the Soviet Union is the only country that can make full use of the brains of its people. This country above all must do so: if regard is paid to Great Britain's relative lack of natural resources it would be a grave risk to aim any lower than we recommend.

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Higher education and the schools

195. Chapter VI has shown, if demonstration were needed, how much future developments in higher education depend on what happens in the schools. A general review of the present and prospective situation in the schools would be out of place in this Report; but since some of their most pressing problems arise directly from their relations with universities and other places of higher education, we must consider what can be done to ease their difficulties.

196. It is incontrovertible that the existing conditions of entry to higher education differ spectacularly from those prevailing before the war and earlier. In the past five years in particular the pressure to enter universities in England and Wales has intensified almost beyond recognition; as we have seen, the number of boys and girls obtaining the minimum university entrance qualifications has grown much faster than the number of university places. Pressure on the Training Colleges has increased, and many qualified and acceptable applicants have not found places. In Scotland, the position in these two sectors is not yet so disquieting, but even there entry to a university has recently become more difficult than it was and candidates who would have been admitted in the past are now rejected. In further education the pressure so far has been less serious, but there is a shortage of places in some fields.*

197. It is not necessary to enlarge at length on the unhappiness and frustration bred in the applicants by this state of affairs. The apprehension among the more gifted boys and girls as they approach eighteen is coming to be as serious as the tension and anxieties caused by the 'eleven plus' examination.

UNIVERSITIES AND THEIR GENERAL IMPACT ON THE SCHOOLS

198. The effect upon the work of the schools of the growing competition for university places is of great significance. In Chapter III we outlined the minimum requirements for entry to the various kinds of higher education. If those qualifications actually secured admission, the schools might well be held to blame if they did not provide a well balanced education. But the intensity of the competition has inevitably forced standards up. The actual qualifications of most of those entering higher education bear less and less relation to minimum requirements. This is strikingly illustrated by the fact that about 80 per cent. of English and Welsh

* In 1961/2, 19 per cent. of the students in further education in Great Britain and 7 per cent. of students in Training Colleges in England and Wales had previously applied to universities and held the minimum entrance qualifications for university admission, though this does not, of course, necessarily mean that a university education would have met their needs better. For a discussion of data on applications, see Appendix One, Part IV, Section 5.

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university students have at least three passes at the Advanced level and about half of them have passed with marks of 60 per cent. or more in at least two subjects.*

199. Although these precise facts have not been made known before, the schools are well aware of the kind of standards required to secure admission; and, in their anxiety to do their best for their pupils, especially perhaps the more gifted, many of them adapt their practice so as to provide what they believe to be the best chance of obtaining a place in a university. Among other undesirable effects, this has inhibited them from taking full advantage of the flexibility of the General Certificate of Education examination.

200. It is often the practice to arrange for pupils to take subjects at the Ordinary level of the General Certificate of Education as early as possible, in order to allow longer preparation for the Advanced level examination, where a high standard of performance is known to be needed for university entrance. In 1961/2 some 29 per cent. of all undergraduates in universities in England and Wales, and 53 per cent. of those at Oxford and Cambridge, had obtained five or more passes at the Ordinary level before they were sixteen—some of them, indeed, before they were fifteen. Thus the general education of many pupils, particularly in boys' schools, is being restricted to the first four years of the secondary school course. The institutions of higher education sometimes complain that too many entrants cannot express themselves clearly in English, have an inadequate understanding of elementary mathematical principles and have made no significant progress in any modern language. We think that there is substance in these criticisms and we believe that an abbreviated general education is one of the causes of these shortcomings.

201. It is also significant that 40 per cent. of those reading arts subjects at universities took no science subjects (as distinct from mathematics) at Ordinary level, and over a third of those reading science took neither history nor geography at Ordinary level. Although subjects taken for examination do not always correspond to the whole range of subjects studied, these figures suggest strongly that, even at this level, there is in many schools an excessive narrowing of the area of study.

202. Beyond Ordinary level, in the sixth forms, there has developed a strong tendency to concentrate on preparation for the Advanced level examination and on the subjects most closely relevant to securing entry into higher education and into the universities in particular. This has led to a reduction, sometimes very drastic, in the time devoted to other subjects and, within the subjects that are being studied for examination, to a range of work often much narrower than would have been chosen in less competitive circumstances. There has also arisen the widespread practice of repeating the Advanced level examination in order to get higher marks: 21 per cent. of the boys and 8 per cent. of the girls who enter universities

* A discussion of the wide variations between university groups will be found in Appendix Two (B), Part I.

with three passes at the Advanced level have spent a year repeating the course and sitting the examination again in one or more of these subjects.

203. Table 31 shows how small a proportion of pupils obtain passes in both arts and science subjects at the Advanced level. (This of course relates only to subjects being studied for the General Certificate of Education, and does not necessarily represent the full sixth form curriculum.)

TABLE 31
School leavers with two or more passes at Advanced level who passed in
different combinations of subjects
England and Wales 1960/1

	Percentage		
	Boys	Girls	Boys and Girls
Arts subjects only	37	66	48
Science subjects only	59	26	46
At least one arts and one science subject ...	4	8	6
All qualified school leavers	100	100	100

Source: *Statistics of Education*, 1962 Pt. 1, Table 31
Note: Mathematics is counted as a science subject.

204. We recognise that a combination of arts and science subjects for the Advanced level examination may provide a less coherent course than a combination of subjects within the science or within the arts fields. But there is no doubt that many boys and girls—particularly perhaps girls—would prefer broader courses in the sixth form and that this preference would be strengthened if, as we recommend later, there were a widespread development of broader courses at university level also. We are sure that many of those who go on to higher education would do better, both at school and later, if they had had a less specialised education than the schools now feel obliged to give them. We do not believe, for example, that it is in the public interest that a student of natural science or technology is frequently not competent in even one foreign language, a student of economics is often without the desirable complement of mathematics and a student of history or literature may be unaware of the significance of science and the scientific method.

205. Moreover it is important to remember that the sixth forms contain many boys and girls who do not contemplate proceeding to higher education, and their needs are not best met by courses that are narrowly focused on Advanced level examinations.

206. We are anxious that our motives in outlining these troubles should not be misunderstood and we should not be taken as making a general criticism of the work of the schools. In spite of large classes and shortages of staff and sometimes of equipment they have a remarkable record. They have achieved an increase in the size of their sixth forms during the last ten years or more that is nothing short of dramatic and, on the evidence of examination results, they have done this without any sacrifice of standards. But the present situation is not satisfactory and we are sure that those who have the interests of the schools most intimately at heart would be the first to acknowledge it.

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207. As we have said already, there is some shortage of places in the Training Colleges and in particular forms of further education. But the root cause of the trouble is the shortage of places in the universities.

208. There would be considerable relief if institutions other than universities had greater attractive power, so that the ambitions of young people and their parents were not directed so exclusively towards one sector. We think that the development of these other institutions that we shall recommend, and in particular our recommendation that degrees should be more widely available than at present, would go some way towards achieving this. There must be some applicants for university places who would have chosen to go to Training Colleges and institutions of further education if they could have obtained degrees by studying there. Wider facilities for working for a degree should help to ease the competition for admission to the universities.

209. But even so, for as far ahead as we can see, the prestige of university institutions will continue to exert great attractive power and will cause the pressure of demand to remain most intense in this sector. In the long run, therefore, an easement must be sought through some increase in the universities' share of the total number of places in higher education. In Chapter XI we shall propose a very great increase in the size and number of universities in order to provide, over the whole period up to 1975, places for at least the present proportion of qualified school leavers; and we shall recommend that by 1980 the universities' share of all places in higher education should rise to 60 per cent., compared with 55 per cent. now.

210. In the meantime, and because improvement is itself intrinsically desirable, we attach great importance to the use of the best possible methods of selection for the places that are available. We are also convinced that there must be more intimate relations between the institutions of higher education and the schools, so as to bring about better mutual understanding of requirements and better methods of fulfilling them. The second half of this chapter is accordingly devoted to an examination of the means to secure these ends.

The special influence of certain universities

211. Before doing this, however, we must give some attention to a set of problems which arise from the competition for entry to particular universities, conspicuously Oxford and Cambridge. Just as competition for entry to universities generally is more intense than competition for entry to other institutions of higher education, so competition for places at Oxford and Cambridge is more intense than it is elsewhere.* Success in this competition is often felt to confer a great advantage in subsequent careers.

212. Are there ways of easing this pressure? If it cannot be eased, can the present methods of selection be regarded as equitable? We concentrate on the problem of Oxford and Cambridge since it looms largest in public

* A detailed study of applicants and entrants to different university groups in relation to their school background and performance in the General Certificate of Education will be found in Appendix Two (B), Part I.

discussion and since, numerically, it is probably the most important. But it differs only in degree from the problems arising from entry to other institutions of outstanding eminence.

213. It has been suggested that the appropriate solution would be for Oxford and Cambridge to transform themselves into postgraduate institutions. There would then be the maximum use, by students best fitted to avail themselves of it, of the concentration of talent among the staff; at the same time there would be no enviable privilege for a limited number of undergraduates.

214. We lend no support to such suggestions. On the contrary we regard them as totally unacceptable. They would involve forcing upon these universities changes of structure so great as completely to alter their nature. Only 18 per cent. of the students at Oxford and Cambridge at present are postgraduate students; and the great strength of these universities resides in large measure in their tradition of undergraduate teaching. To turn them into institutions limited to postgraduate students would involve a complete break with much that has made them great. Moreover we see no virtue in a solution that would deprive other universities of their postgraduate students. There may well be need for concentration at the postgraduate level in some subjects. But concentration on this scale would change both the nature and the future of the rest of the university system. It would force upon Oxford and Cambridge an artificial reconstruction utterly antipathetic to their main traditions and elsewhere it would limit or retard developments that are greatly to be desired.

215. In our judgment there is no easy solution to this very deep-rooted problem. We do not believe that, while institutions differ in achievement and reputation, as is inevitable, it will ever be possible to eliminate from the world at least a certain measure of the kind of competition we are discussing and the problems to which it gives rise. But, given time, we hope for a considerable diminution of its intensity. Already some of the newer universities are beginning to be chosen by students who in the past might have had the older universities first on their lists; and we do not doubt that, if policy were directed to this end, this might become much more widespread. The solution to the problem of excessive competition for entry to the older universities is to be found in the deliberate development of other universities in such a way that the relative attraction of Oxford and Cambridge is no longer so great.

216. This will not be easy. Great university traditions are not built up over-night; and excellence is not something that can be bought any day in the market. But desirable development can be greatly hastened by appropriate support. So far as buildings are concerned, the resources required to establish and maintain first class facilities and high standards of general amenity and spaciousness of design are not beyond our capabilities. The example of other nations, not all richer than we are, shows that it can be done. Our strong recommendation therefore is that, in providing for expansion, specially generous capital grants both for the

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renewal and development of other existing universities and for those in process of establishment should be made with this deliberate purpose in mind. We must not let the example of earlier founders put this generation to shame.

217. Until much progress has been made in this direction, however, it will still be asked whether present methods of selection at Oxford and Cambridge have results that are socially just. In 1961/2 some 39 per cent. of all undergraduates at Oxford and 25 per cent. at Cambridge were from schools maintained by local education authorities. At the remaining universities in England and Wales the proportion was 70 per cent.

218. In Table 32 the position is shown separately for men and women entering in 1955 and 1961. The proportion of women entering Oxford and Cambridge from maintained schools has grown in recent years and by 1961 was 47 per cent. But the proportion of men, which has remained roughly constant for some time, was only 30 per cent. It is with the boys' schools that we are mainly concerned here.

TABLE 32
Type of school attended by home entrants to Oxford and Cambridge
and other universities
England and Wales 1955 and 1961

					Percentage				
					Type of school			All entrants	Numbers (= 100%)
					Maintained	Direct grant	Independent		
Men									
Oxford and Cambridge									
1955	...	...	...	...	31	12	57	100	3,709
1961	...	...	...	...	30	16	54	100	4,002
Other universities									
1955	...	...	...	...	72	10	18	100	9,647
1961	...	...	...	...	72	13	15	100	13,638
Women									
Oxford and Cambridge									
1955	...	...	...	...	39	21	40	100	533
1961	...	...	...	...	47	22	31	100	593
Other universities									
1955	...	...	...	...	66	14	20	100	4,638
1961	...	...	...	...	76	10	14	100	6,666

Source: 1955: Kelsall, R. K. *Applications for Admission to Universities*
1961: Undergraduate survey. (See Appendix Two (B), Part I, for details of the analysis.)

219. The causes of the persistence of this state of affairs are often misapprehended. We do not doubt that, in the past, prejudices weighted the scales against the applicants from maintained schools; and we think that such influences have not altogether ceased to operate. Moreover, the able boy from a small grammar school and a home with no tradition of higher education may not find it easy to make his quality apparent at interview to

those responsible for selection. But in general we believe that nowadays the candidate from a maintained school who actually presents himself for entrance receives due consideration of his claims. A significant cause of the disproportionate representation of the independent schools seems to be that relatively fewer boys from maintained schools apply.

220. The reasons for this are various. Many maintained schools, with staffing difficulties and shortages of specialist accommodation, cannot afford to organise for a few pupils the specialised instruction necessary to ensure success. Moreover, it is sometimes difficult for pupils in maintained schools, who are normally older when they gain passes at the Ordinary level than their fellows in independent schools, to spend three years in the sixth form. But we suspect that the main explanation is that they feel convinced that their chances are small. This in turn is probably connected with the relative lack of contact between the colleges of Oxford and Cambridge and maintained schools. (This applies much more to the men's than to the women's colleges; the latter have long had a close and fruitful association with girls' schools of all kinds, whose problems stem rather from the small number of places for women at Oxford and Cambridge.)

221. Part of the remedy, therefore, is to be found in closer relations between the men's colleges and the maintained schools, of the kind that have long prevailed between the colleges and independent boys' schools. We are glad to learn that many of the colleges are now taking action to bring this about.

222. But there is another aspect to this. Already at Oxford and Cambridge 39 per cent. of men undergraduates and 52 per cent. of women hold three or more passes at the Advanced level with marks of 60 per cent. or more, compared with 18 per cent. of men and 15 per cent. of women undergraduates at other universities in England and Wales. The more the colleges succeed in drawing entrants from schools of all types, the greater will be the concentration at Oxford and Cambridge of the abler students. And, while it is certainly arguable that under present conditions this may be regarded as tending to greater social justice, it is also arguable that so great a concentration tends to set up new distinctions and exclusions. It is not a good thing that Oxford and Cambridge should attract too high a proportion of the country's best brains and become more and more exclusively composed of a certain kind of intellectual *élite*. We therefore return to our contention that, in the long run, what is needed is not only greater equality of opportunity to enter Oxford and Cambridge but also rather more equality of attraction between them and at least some other institutions. We should make the most of first class ability wherever it exists. But, at the undergraduate stage at least, it should not be concentrated in too small a number of centres.

223. We have received many representations about the open scholarships at Oxford and Cambridge. Some of our witnesses have said that the competition for these scholarships imposes additional strains on the schools, particularly on those schools whose pupils do not very often win such scholarships. Others have argued that the form of the examinations for these awards has been deliberately and successfully devised to avoid putting

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undesirable pressures on the schools. We have been urged to recommend that entrance scholarships should be abolished and, sometimes, that the money should be used instead for awards at the end of the first year or for postgraduate students. This complex problem does not affect Oxford and Cambridge alone: all universities with special endowments for undergraduate scholarships are to some extent involved.* To have studied it in detail would have involved considerable investigation and the calling of additional evidence, which would have delayed our Report. Since we had formed the view that any problems arising from the existence of entrance scholarships were far less serious than the problems arising from the shortage of places, we decided against further investigation and therefore make no recommendations here.

SELECTION FOR HIGHER EDUCATION

224. We return now to the two general questions to which we referred earlier. Since selection is bound to continue and competition to enter the more favoured institutions cannot be eliminated, what can be done to ease the difficulties which accompany them and to promote greater understanding between institutions of higher education and the schools?

Information about opportunities

225. Some of the trouble at least arises from lack of information. Too many young people and their parents are choosing institutions and courses on the basis of inadequate knowledge. For example, too few students and their parents yet appreciate the importance and interest of technology or know of the wide range of courses available in universities and elsewhere. We recommend that the institutions of higher education and the schools should consider with the Ministry of Education and the Scottish Education Department how better information can be made more generally available about the great variety of courses offered in the three main sectors of higher education. The Ministry of Education has made a valuable start by distributing to schools a booklet *Further Education for School Leavers*, part of which is devoted to the range of advanced courses in further education open to sixth formers.

Faculty entrance requirements

226. Further difficulties arise when conditions of entry vary unnecessarily between institution and institution: the greater the uniformity of university, faculty and departmental entrance requirements, the wider the range of choice for schools and candidates. We therefore welcome the recent moves by the universities in England and Wales towards making faculty entrance requirements uniform. Henceforward, in all but exceptional cases, a student will be able to prepare himself for admission to one university with the assurance that, if he fails to find a place there, the subjects he has studied will be equally acceptable in a similar faculty elsewhere. We recommend

* Information on entrance scholarships and on the background and performance of candidates will be found in Appendix Two (B), Part I.

that the Scottish universities, whose common entrance requirements are prescribed by the Scottish Universities Entrance Board but whose faculty requirements vary, should work towards a similar solution.

Machinery for handling applications

227. Where pupils from many schools are applying to many institutions, some kind of clearing house becomes essential. Such a clearing house has been operating successfully for many years for the Training Colleges, in close collaboration with the schools, and we warmly welcome the recent establishment by the universities of a Central Council on Admissions to handle all applications except those for Oxford and Cambridge and for Scottish applicants to three Scottish universities. We appreciate the reasons that led to these exceptions at the outset; but we recommend that the arrangements should be extended as soon as is practicable to cover all university institutions (including, in view of our recommendation in Chapter X, the Colleges of Advanced Technology).

Methods used by selectors

228. We now turn to the methods used by individual selectors. In this field perfection is unattainable. But anyone who is responsible for admissions must be acutely aware of the difficulty of making the right choices and would welcome any suggestions for improving his techniques.* We have two recommendations, one old-fashioned, one new-fashioned, that we believe would be helpful, especially in the selection of candidates for universities.

229. Our old-fashioned suggestion is that more attention should be paid to school records. In the form in which recommendations usually reach institutions of higher education they are not always as useful as they might be. We think that what may be needed here, in addition to the usual estimate of character and general intelligence, is an assessment of performance over a period of years and a clear indication of the candidate's aptitude for the work of the institution for which he or she is applying. Evidence of this kind may even be more reliable than the results of single examinations or interviews, and we recommend that representatives of institutions of higher education and of the schools should jointly consider how school records and recommendations could best contribute to the process of selection. Institutions of higher education for their part should send back to the schools, as early and as fully as possible, an account of the progress made by their pupils.

230. Our new-fashioned suggestion was inspired by our visit to the United States. There it was found some time ago that the academic entrance examination used by the highly favoured universities and colleges was narrowing the curricula of many private schools and the more ambitious high schools. The situation was not unlike the one that confronts us today. There was the same competitive pressure, the same confusion of alternative requirements, the same temptation to produce the well drilled examinee. At

* An account of research into the efficacy of different methods of selection and a discussion of some of the results will be found in Appendix Two (B), Part I.

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the instigation of Harvard University an attempt was made to devise a supplement to the academic examination that would reduce the ill effects on the schools. The College Entrance Examinations Board was set up in 1926 to undertake this work, and nearly all the great universities and institutes of technology, where competition for entry compels rigorous selection, use its tests as a matter of course in their admission procedures.

231. When we were in the United States we had discussion with representatives of the College Entrance Examinations Board, and we were sufficiently impressed with what we heard to believe that further investigation in this country should be undertaken. The so-called Scholastic Aptitude Tests are not intelligence tests, but are constructed on the basis of empirical studies, which show both that the marks obtained are consistent and that they provide a useful guide to later performance in academic courses.*

232. We welcome the initiative taken in 1962 by the Scottish Council for Research in Education, with the support of the Carnegie Trust, in organising a large-scale experiment for the use of these tests in Scottish schools and the subsequent follow-up of the careers in higher education of students who have taken them. There should be more research in this field. Such research is highly specialised, and we recommend that the Committee of Vice-Chancellors and Principals, the Ministry of Education and the Scottish Education Department should entrust it to a suitable independent organisation.

233. In recommending investigation into methods of testing aptitude, we are not suggesting that such tests should replace academic examinations. These, with school records, must continue to play an essential part in selection procedures. But if some of the predictive load could be shifted from examinations, the pressure upon candidates to cram for them would be less; and selection is likely to be more efficient if based on performance in more than one type of test. We recommend experiment and investigation here, rather than a frontal attack on the present system of selection.

CO-OPERATION BETWEEN HIGHER EDUCATION AND THE SCHOOLS

234. Any policy of imposing from outside conditions of entry to institutions of higher education or of imposing programmes of work on schools would be alien to British traditions and, because of the complexity of the situation, it would almost certainly involve prescriptions that were ill-conceived. What is needed is effective co-operation between the two parties.

235. Nevertheless we do not think that co-operation of this sort can be left entirely to spontaneous initiative, valuable though that may be. Spontaneous initiative cannot in any case settle such a question as university entrance requirements. Nor can the cure be brought about by some extraordinary *ad hoc* conference sitting only on one occasion: something continuing and permanent is necessary.

* See article by Professor R. A. C. Oliver, *Universities Quarterly*, Vol. 16, No. 3, June 1962.

Consultative machinery

236. The National Advisory Council on the Training and Supply of Teachers has done much, and we hope will do more, to develop links between the schools and Training Colleges in England and Wales. So far as relations between the schools and the rest of higher education are concerned, we think that a development recently canvassed may help towards a solution. The Minister of Education has suggested that a Schools Council should be set up, replacing the Secondary School Examinations Council but concerned with school curricula as well as with examinations. The establishment of some such co-operative machinery is now being discussed by representatives of all parts of the educational world, including the universities and other institutions of higher education. If a body of this kind comes into being, these institutions will indeed be represented on it. But if co-ordination is to be achieved within the field of higher education, there should be a parallel body to deal with the questions that arise in universities and elsewhere. The two bodies should then devise means whereby common problems can be jointly discussed. The content and timing of the Advanced level examinations in relation to the organisation of sixth form courses and the requirements of the universities are obvious examples.

237. We shall propose in Chapter XV a reconstruction of the Committee of Vice-Chancellors and Principals to enable it more effectively to represent the university institutions. The reconstructed committee would obviously be the body to collaborate with the proposed Schools Council in joint discussions. But the numbers involved in such joint discussions should be small so that their deliberations would be practical rather than rhetorical. Associations concerned with the teaching of particular subjects should also be consulted and recommendations on particular problems and on general questions of the relations between schools and higher education should be published at suitable intervals.

Contact between teachers

238. At the same time we hope that there will be more spontaneous initiative at the grass roots. For example, much more could be done both in schools and in institutions of higher education to help young people to solve the problems of adjustment, personal and social as well as intellectual, that beset them when they make the transition from one to the other. Then too, apart from official organisation, there is a need for a greater sense of community between the schools and the centres of higher education, between teachers in the same group of subjects, and between institutions that, in one way or another, cater for each other's needs. We have already mentioned the desirability of better contacts between Oxford and Cambridge and the maintained schools. We should also like to see these schools and the local education authorities develop with the other universities of this country a closer relationship of the sort that has existed for a long time between many of the independent schools and the colleges of Oxford and Cambridge. We are sure that the schools would make a ready response if more individual universities were to seek more frequent contact. This can take various forms, ranging from regular visits by school teachers to

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institutions of higher education, for refresher courses or for less formal purposes, to their secondment there for a term or a session—though this will not be easy to arrange so long as there is a shortage of teachers.

Revision of textbooks and syllabuses

239. Finally, the state of knowledge itself needs continuous reinterpretation by those engaged in higher education for the benefit of those in the schools. A good deal has been done already, but school syllabuses in some subjects still need much pruning and amendment in the light of recent developments in more advanced studies. Once syllabuses have been brought up to date, text-books must be revised: there is still much dead wood in many of those in current use, especially perhaps in physics, mathematics and languages. Guidance in the necessary revision must be given by those who are masters of their subjects, in collaboration with those who are masters in the art of teaching children. And when revision has been carried through there is the further task of commending it to teachers generally and retraining them in new techniques. We were greatly impressed by what is being done in this way in the United States.

240. In England and Wales the Nuffield Foundation, building on work done by the associations of science teachers, the Royal Society (which is constantly active in this field) and other bodies, has already sponsored large-scale research into school science curricula and aids to teaching; and, among its other activities, the Curriculum Study Group of the Ministry of Education has enlisted the support of a number of local authorities for experiments in the teaching of foreign languages in primary schools. In Scotland the Scottish Education Department has promoted similar developments, particularly in the modernisation of syllabuses in physics and chemistry, in which considerable progress has already been achieved. There are other examples. But clearly more must be done; and, while this is not the kind of activity that lends itself to minute organisation, all the organs of government concerned, as well as the Committee of Vice-Chancellors and Principals and any new body that may emerge from the discussions referred to in paragraph 236, will have a duty to encourage curriculum research and development. In this work they will no doubt look to such bodies as the Royal Society, the British Academy and the Research Councils for help.

CONCLUSION

241. In this chapter we have been concerned with the easing of strains arising from the shortage of places in higher education in general and from the attractions of certain institutions in particular, with improvements in the arrangements for selection and with the development of much closer co-operation between the institutions of higher education on the one hand and the schools on the other. Our proposals all have a common objective: the relief of unnecessary pressures on the schools. The most important of them require action by the Government, but many others are a matter for the good sense of those directly concerned.

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University courses

242. The argument in Chapters VI and VII will, we hope, have established the case for a massive expansion of higher education. In this chapter and the two that follow we shall be discussing some salient aspects of the work of existing institutions. These chapters do not correspond exactly with the institutional sectors described in Chapter IV because it is impossible in this context to treat the different institutions, and especially universities, in isolation. In the present chapter we confine ourselves to university courses. In the next we deal with the courses for the education and training of teachers, and consider the relation between the Training Colleges and the universities. In Chapter X we deal with technological and other professional education and consider the provision made for technology both in universities and in other institutions. These three chapters should therefore be read as a single whole: they lead in turn to Chapter XI, in which we consider what should be the future pattern of institutions.

243. Much of what we have to say in this chapter has general implications for all future courses at degree level irrespective of where they will be offered. But it is convenient to discuss degree courses in their present university context, because the universities provide at present the great majority of courses at this level.

244. It is important to remember that the universities are already changing year by year at a pace unprecedented in their history. First and foremost, they are educating greatly increased numbers of young people. In 1938/9 there were 50,000 full-time students in the universities; in 1954/5 there were 82,000, and in the space of the next eight years numbers rose to 118,000 in 1962/3. There have been similar increases in the number of full-time university teachers, from just under 5,000 in 1938/9, to 11,000 in 1954/5 and nearly 16,000 in 1962/3.

245. Moreover in various fields, particularly in the pure and applied sciences, knowledge has made such significant progress that the curriculum is now very different from that of twenty years ago. Some of this new knowledge has led to new first degree subjects, while some has required such sweeping changes in long-established subjects as virtually to create new courses, and alter the subdivision of old ones.

246. An immense effort of rethinking and reorganisation has been required of every university in these years, often in an atmosphere of uncertainty whether resources would be forthcoming for new staff, new buildings and new equipment. In spite of this the universities may rightly claim not

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only to have maintained academic standards but also to have continued to be the main contributors to fundamental research in this country, an achievement of which they may be justly proud.

FIRST DEGREE COURSES

247. The first question we have to discuss is whether the courses now available provide adequately for undergraduates and whether, in view of the proposed expansion, new courses are needed. There are significant differences here between conditions south and north of the Border.

England and Wales

The structure of first degree courses

248. The pattern of first degree courses in England and Wales is so varied, not only as between universities but also as between faculties in a given university, and in many respects even between courses offered within a faculty, that any attempt at description in terms of a few categories inevitably oversimplifies.*

249. We begin with the distinction between courses leading to honours and those leading to pass or ordinary degrees. But this distinction is not simple. A course may be regarded from the outset as an honours course or as a pass course, and the students taking it may be regarded at all times as honours or pass students. In other cases, even where students are registered for honours courses, they are initially engaged on studies common to both honours and pass courses and are therefore, in the view of the university, only 'potential' honours students, being formally selected for honours or pass courses only after one or two years of study. On some honours courses, pass degrees may be awarded to those who in the final examination fail to reach honours standard; conversely, there are a few pass courses on which honours may be awarded to those who achieve distinction in the final examination.† It may be possible for a student to transfer, at various stages, from an honours to a pass course or *vice versa*; indeed, some pass courses exist only to provide for students who, at the end of their first or second year, fail to reach the standard required of honours students and are therefore relegated to the easier course. But one fact stands out: the great majority of courses are courses for honours degrees.

250. A second major division between courses rests on the number of main subjects a student is required to study. Here, again, there are difficulties of definition. It is hard to define a subject in a simple and generally acceptable way and different universities have different conceptions. But, within these limitations, there are courses that clearly involve one, and others that involve two or more, main subjects studied to the same level. Courses with one main subject in fact normally touch

* A fuller description of the structure of first degree courses, and recent changes in them, will be found in Appendix Two (B), Part III.

† There are also general courses not known as pass courses but on which 80 per cent. or even more of those taking them normally receive pass degrees.

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on related fields, even though these may not be specified in the syllabus. And most courses with one or even two main subjects normally involve the formal study of ancillary subjects, which the student may or may not be able to choose for himself and in which he may or may not be examined. There are relatively few courses involving the study of more than two main subjects to the same level.

251. In recent years the content and arrangement of many courses for first degrees have been changed. One conspicuous aim has been to introduce more breadth into the curriculum. To this end some universities have offered a wider range of optional subjects. In many courses in the humanities the approach has become more general: what was formerly a course in Spanish, for example, may well have become a course that includes Portuguese and Spanish American studies. Geography, to take another example, now often embraces related sciences and some social studies. In the pure and applied sciences the nature of knowledge in itself has always enforced the study of more than one fundamental discipline; and the divisions between the pure sciences are less rigid today than they were formerly. In applied science courses recent advances in knowledge are leading to increased emphasis on pure science, at least in the earlier part of the courses.

252. A notable innovation in recent years has been the introduction in the humanities of the joint, combined or double honours course in which two main subjects are studied to the same level. Some of these courses have been in existence for upwards of fifteen years, but many are more recent. A few universities now offer more than twenty possible combinations of subjects as joint or double honours courses; some others offer at least ten: philosophy and English, philosophy and French, Spanish and drama, fine art and Italian, English and music, English and Greek, are among many pairs of subjects now offered as first degree courses. There are now also a small number of courses which combine an arts with a science subject, for example philosophy and mathematics, philosophy and physiology, and business studies and engineering. In social studies a varied combination of subjects is usually possible; for example, economics may be studied with politics and history.

Criticisms

253. We have received much evidence that is critical of present first degree courses, and of specialised honours courses in particular. It has come from the schools, from industry, from professional organisations and some from university teachers themselves. The complaints are under two heads: first, that the courses are overloaded and, second, that they are not suitable for many of the students who now take them. We shall discuss these criticisms separately.

254. In a period of rapidly changing knowledge there is undeniably a tendency to add new knowledge year by year to an already full curriculum. It is easier to add than to take away. It is difficult to reach agreement

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as to where to impart less knowledge and where to concentrate more on principles. Especially where an element of professional preparation is involved, the pressure is all the other way. This is a danger to which the University Grants Committee drew attention in its report for 1947/52, and again, at greater length, in its report for 1952/57. It remains a real one. The essential aim of a first degree course should be to teach the student how to think. In so far as he is under such pressure to acquire detailed knowledge that this aim is not fulfilled, so far the course fails of its purpose.

255. The remedy, we suggest, is twofold. We are hopeful that an extension of postgraduate studies, which we recommend later, may produce some relief. If those who prepare syllabuses are assured that a higher proportion of the academically-minded will have an opportunity to take even a short postgraduate course of further instruction and training, they may feel able to include a smaller content of specialised knowledge in the requirements for the first degree. But, beyond this, a thorough revision of syllabuses is also necessary. We are aware that much has been done in recent years to prepare new syllabuses in the pure and applied sciences to match radical changes in knowledge. But reappraisal should go further. We think that revision of this sort is necessary in most disciplines and where it has not recently been carried out we recommend it should be put in hand forthwith. By this we do not mean merely marginal reassessments of detail but a radical review of courses as a whole, and of the scope of subjects, to make sure that with the passage of time their content has not become too great for a three-year course.

256. The second criticism directed at first degree courses is that they are not suitable for many who are now taking them. By this is meant two things: that courses which concentrate on a narrow front are intrinsically unsuitable for many students, who would benefit more from broader courses, and, second, that many students would be better prepared by broader courses for their future careers. Before we comment on these strictures we set out the facts. Table 33, which is based on statistics supplied by the universities,* gives the present distribution of students between nine main types of course.

257. It should be said at once that, like most short statements, this table may convey an over-simplified impression. As we have explained already, the 'single-subject' honours course in fact usually comprises some variety of discipline which it is found appropriate to classify within the single subject, and to this extent the degree of concentration implied may be exaggerated. Nevertheless, when all account has been taken of this, it is clear that the great majority of students are engaged on courses involving a high degree of specialisation, despite the provision in many universities of courses with a broader basis.

* Statistics supplied by the universities on the distribution between different types of course of first year undergraduates in 1961/2, together with the universities' comments on the probable distribution of these students between different types of course in their final year (for the vast majority, 1963/4), form the basis of an analysis which will be found in Appendix Two (B).

TABLE 33
Type of first degree course taken by university students
England and Wales 1961/2 and (estimated) 1963/4

								Percentage	
								First year (1961/2)	Final year (1963/4)
Honours									
1 subject	...	...	...	...	...	...	...	56	68
2 subjects	...	...	...	...	...	...	...	5	9
3 subjects	...	...	...	...	...	...	...	11	4
								72	81
Pass									
1 subject	...	...	...	...	...	...	...	1	6
2 subjects	...	...	...	...	...	...	...	1	7
3 subjects	...	...	...	...	...	...	...	2	3
								4	16
Common studies									
1 subject	...	...	...	...	...	...	...	6	3
2 subjects	...	...	...	...	...	...	...	2	—
3 subjects	...	...	...	...	...	...	...	16	—
								24	3
All undergraduates								100	100

Source: See footnote to paragraph 256

Notes: 1. The category 'common studies' covers three main variations in the arrangement of the course: first, that students take a general preliminary year, after which they divide as between different types of honours course or between honours and pass courses, or that, although they may be registered for honours, they are not formally accepted as honours students during the first year. The second variation is that a decision as between honours and pass courses is taken only at the end of the second year. The third variation is that students may be divided between pass and honours only at the end of a three-year course by the final examination results, both types of degree being normally conferred on a substantial proportion of students.

2. The table excludes undergraduates in medical subjects and agriculture.

Deep and broad courses

258. There are unquestionably young men and women for whom study that involves penetration in depth is naturally appropriate. They are eager to get to the heart of the subject and to develop powers of rigorous analysis and observation within its ambit. For such students the specialist first degree courses provided in the universities of England and Wales are an admirable education, indeed one which compares well with any degree course known to us anywhere in the world. And we should add that the suitability of this training is not necessarily confined to future academics and high professionals. The urge to knowledge for its own sake, pursued in depth, is one that inspires students of many levels of ability.

259. Nevertheless there is another sort of mind that at the first degree stage is likely to be more at home in broader fields studied to more moderate depth. There is evidence that many young people would prefer

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such studies were they assured that broader courses carried no stigma of inferior status. Many students would like to enlarge their knowledge of a number of subjects and feel constricted by the horizons of courses specialising in depth.

260. Moreover, there are many walks of life in which some knowledge of a number of subjects is more desirable than a deep knowledge of one. Table 34 shows the initial occupations taken by graduates. The high proportions entering school teaching (particularly from the humanities) and industry (particularly from applied science) are noteworthy.

TABLE 34
Occupations of graduates six months after graduating: by faculty
Great Britain 1962

		School teaching or teacher training	Industry	Com- merce and law	Other public service	Other employ- ment	Other post- graduate work	All occupa- tions
Faculty								
Humanities	...	48	7	5	6	23	11	100
Social studies	...	16	13	24	9	26	12	100
Science	...	27	22	3	6	14	28	100
Applied science	...	3	61	1	8	11	16	100

Source: University Grants Committee

Note: See Appendix Two (B), Part II, for definitions of the categories included in the table.

261. For many kinds of school teaching those who can offer two or three subjects are more useful than those who can offer only one. The testimony both of the Ministry of Education and several of the Chief Education Officers who have appeared before us is unequivocal on this point. Mathematics is a conspicuous example here. Many schools have great difficulty in recruiting suitably qualified teachers of mathematics and of science;* if proper grounding is to be given in these subjects in the schools more graduates who have studied them to an appropriate level are urgently needed. The great majority of undergraduate students of mathematics have neither the aim nor the ability to become mathematicians of the front rank, and for them somewhat less concentration would be appropriate, in order to make way for the study of some other suitable subject such as physics or chemistry. We also think that for some prospective teachers a course involving three main subjects, one of them Education,† may be appropriate. What is true of the teaching profession is often true elsewhere. There are indeed certain occupations where a great deal of specialist knowledge is required. But there are many

* The supply of teachers in these subjects has worsened in recent years, as is shown in Appendix Three, Part IV, Section 3.

† By this we mean Education studied as an academic subject.

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others, including perhaps a majority of industrial and administrative appointments, where a broader education is likely to be more useful. We think that many employers already recognise this and that, if more such courses were offered and more students took them, the response from employers would be welcoming.

262. The present distribution of students between different types of honours course is therefore unsatisfactory. A higher proportion should be receiving a broader education for their first degrees. This in itself calls for change. But if greatly increased numbers of undergraduates are to come into the universities in the future, change becomes essential. Indeed we regard such a change as a necessary condition for any large expansion of universities. Greatly increased numbers will create the opportunity to develop broader courses on a new and exciting scale, and we recommend that universities should make such development one of their primary aims.

263. In many universities the need to offer a more general education has already begun to influence policy, and in recent years there have been many interesting attempts to provide broader courses of one kind and another. Yet the results to date have been comparatively meagre. There are several probable explanations for this.

264. First, in the past, university departments have tended to be focused upon courses involving one main subject; these courses and the students in them have been the main centre of the teachers' interest and students have gravitated naturally towards them. In consequence courses that over-run departmental boundaries have tended to leave the student without a spiritual centre. This is a problem of organisation and the difficulties of solving it are not to be underrated. But a great effort should be made to do so. It seems clear, for example, that a General School is unlikely to flourish without a Head and without at least some teachers whose main duties are in it. If students see that teachers are as interested in students with a less specialised interest as they are in those who are concentrating on their respective subjects, if they feel that they will be as well looked after if they choose a broad course, it will not be long before broader courses attract many more students than they do now. We think that all the universities have a great opportunity here. The new universities have it in a special form and there are welcome signs that some of them are taking advantage of it.

265. The second explanation is that in choosing courses of study at the university young people are more influenced by their school teachers, parents and friends than by university teachers. Our survey showed that about 40 per cent. of students received some advice at school about the range of courses open to them at universities; only 9 per cent. received any advice of this kind from members of a university's staff. In many universities applications have to be made to a particular department, and, unless this department shares in the organisation of a combined course, the student has by his application already committed himself to a specialised course

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of study. Clearly the main task must rest with the schools. Yet the schools cannot discharge this responsibility unless they are themselves properly informed. In Chapter VII we have already referred to the lack of adequate information about the range of courses of higher education offered in the universities and elsewhere. It is important that the schools should know more about the variety of study available and should encourage young people more suited to broader courses to enter them. In Chapter XVIII we shall refer to the need for a national information service on opportunities in the whole field of full-time higher education in the years of emergency immediately ahead. Such a service is likely to be of permanent value, and not the least of its advantages would be the dissemination of full and accurate information on different types of first degree course. To such a service the Universities Central Council on Admissions would have an important contribution to make.

266. Thirdly, it may be that some students are deterred from embarking on broader courses because they hope to proceed after the first degree to research, and they think their chances of being able to do so are small unless they have concentrated on one main subject for the first degree. But this need not be so. The type of shorter postgraduate course of instruction and training that we describe later in this chapter should help to fill any gaps there may be in a student's specialised knowledge before he proceeds to research.

267. In pleading thus for a larger recruitment for broader types of honours course, we should like to make it clear that we are not arguing for the creation of soft options. We are not urging greater breadth in order to temper the wind to the shorn lambs. Specialised courses are not necessarily more difficult than courses with a wider coverage: indeed the contrary may easily be true.

268. Nor are we arguing for breadth as such, regardless of the suitability of the combinations. There are long-established and natural groupings of subjects: chemistry, physics and mathematics, and, in the humanities, English with history and French, are obvious examples. We are arguing that there should also be experiments in new combinations of subjects which have recognisably organic connections: technology, for instance, with some social studies showing the more general implications of the technologist's profession; philosophy and mathematics with the history of science; and, for many students, some study of the past as well as the present state of the disciplines they study.

269. We would, however, offer a word of caution. Undergraduates should not be made the guinea-pigs of experiments with totally new subjects without textbooks or a commonly accepted core of methods of thought. We have nothing to say against new subjects: it is part of the business of institutions of higher education to help to bring them to birth. But the place for thought when it is still inchoate and embryonic is chiefly at the postgraduate level, not in the instruction of first degree students. Few things can be more disturbing to most students than not to know where

to turn, to have no books to which they can refer to confirm or deny the views they have heard expressed in lectures. Equally, of course, we are not recommending courses that make no appeal to the critical and imaginative faculties and involve little more than the acquisition of factual material. But there is mean in such matters, and in planning courses for undergraduates it may be urged on their behalf what Napoleon urged on behalf of the common soldier: 'Respect the burden'.

The need for flexibility

270. However well informed the schools and the prospective undergraduate may be about the variety of studies offered, young people when they enter the university cannot know for certain how their academic interests will develop, and many will not have formed clear views about their future careers. About half the undergraduates (excluding medical students) questioned in our survey said that they came up to the university with a fairly definite idea of the occupation they hoped to find after finishing their university career. But, of these, only about half said that this had been a major factor influencing their decision to go to the university, and about a third had changed their minds by their final year about the future career they wanted.* Considerations of this kind suggest the need for as much flexibility in first degree courses as is academically and administratively possible.

271. In this connexion we welcome the arrangements that exist in some universities to allow the student to postpone his choice of special study until the end of his first year. In technology and in social studies, both fields normally outside school curricula, it is usual for university study to begin on a broad front and for the choice of special subject to be made only after a year of general study has been completed: here the need for flexibility is obvious. For technology, this should also mean that it is easy for a student to move from pure to applied science or *vice versa* at the end of his first year. We recognise that a move from a broader course to one involving only one main subject, or between courses each involving the study of one subject in depth, will in all probability mean that the student needs an extra year to complete the curriculum. Here more than academic arrangements are involved, because the student will need an extension of his grant, and hence the expenditure of additional public money. Such cases merit serious consideration, however, and where sound educational reasons for a change of course are established, an extension of grant is justified. It should be an important principle of policy to arrange for as much flexibility as possible. The lack of it can mean frustration for the students who initially made the wrong choice and even, for some of them, eventual failure to complete the course successfully.

* Our information on choice of courses in relation to career intentions will be found in Appendix Two (B), which will also contain a section on the careers of graduates in relation to subject studied, class of degree and university.

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272. A further kind of flexibility will be needed, that is, flexibility in level. Courses at a less arduous level than is implied by honours will still have a valuable part to play in university education. As we have noted earlier in this chapter, the great majority of first degree courses are for honours degrees and, as Table 33 shows, only 4 per cent. of students start in courses that are from the outset courses leading to pass degrees. We expect that the numbers of such courses and the proportion of students in them will remain small, although these courses will rightly persist to meet special needs. The great majority of students will start in courses where there is opportunity to obtain honours but, however well devised the methods of selection, there will be some who show, by the end of their first or second years, that they are not fulfilling their early promise. For them a rather less ambitious programme of work is desirable, which can be provided either by their entering a different and slower 'stream' or by their taking a different course leading to a pass degree. Either solution is preferable to compelling the student to remain on a course he cannot appreciate and in which he will eventually fail or terminate his studies, provided always that the new course of study arranged for him can form an articulated whole and an education in its own right. In these ways the slower and less able student can obtain a university education that is both valuable in itself and useful in his future career.

Scotland

273. We now turn to the Scottish first degree system, which differs in important respects from that of the universities of England and Wales. Its distinctive feature is the Ordinary M.A. course, and, to a lesser extent, the equivalent arrangements for the Ordinary B.Sc. Though they are broader in scope, both are at a level equivalent to pass degree courses south of the Border, and require three years of study. Until the end of the last century the Ordinary M.A. was a common and often an essential preliminary which had to be completed before specialised study could be attempted. This tradition has been slow to change and many traces of it still remain.

274. The Scottish preference for a broad, general education, though less strong than it once was, still makes it impossible for an honours course to be entirely self-contained. A student is accepted by a faculty rather than a department, and has to show during his first two years of study, in classes that cover a range of subjects, his fitness to proceed towards an honours degree. This requires four years to complete. The Ordinary M.A. is the first choice of about a third of the arts faculty entrants. It is in fact taken by two thirds. In science the proportion of honours graduates is higher.

275. The English and Welsh practice of spending two or three years in the sixth form has not developed in Scotland, except in a few schools teaching for the Oxford and Cambridge scholarships. Consequently the level of work in Scottish first year university classes tends to be less advanced, in those subjects which are taught at school, in comparison with similar classes in

England and Wales. The wider spread of subjects in the early years, and the rather less specialised nature of many honours courses, mean that the level of the Scottish four-year honours degree is approximately the same as that of the three-year degree in England and Wales.

276. On the whole, the balance of Scottish opinion is in favour of this system of first degrees. There are some specialist teachers who wish for greater concentration of studies. In general, however, the evidence we received indicates that the present balance is regarded as satisfactory. But some witnesses thought that the Ordinary degree student, taught as he was in large classes, did not receive as much individual attention as he should: he was not readily identifiable by any particular head of department.

277. We concur in these sentiments. We think it is no accident that the Scottish system has often served as a model for higher education in the English-speaking world. We also realise that as universities grow in size, some steps must be taken to make sure that students who have no departmental affiliations do not get lost. We shall return to this topic, and others involving the relations between teachers and students, in Chapter XIII.

THE LENGTH OF FIRST DEGREE COURSES

278. In England and Wales only 13 per cent. of students (other than medical students) take courses that last more than three years. The proportions are 8 per cent. in arts, 14 per cent. in science and 22 per cent. in technology.* This limitation of most first degree courses to three years is sometimes criticised. The growth of knowledge, it is urged, makes it increasingly difficult to do justice in three sessions to the subjects involved. Abroad, the equivalent of an honours degree usually involves a minimum of four years, and, while so many courses south of the Border are confined to three, so long, it is said, must they labour under a comparative disadvantage.

279. In making such comparisons great caution is needed. Longer courses do not necessarily involve a higher standard. As has just been said, the first year of the Scottish four-year degree course is largely concerned with work that in England and Wales is done at school and the same is true of certainly the first, and, in some cases, the second year of work for a first degree in the United States. We have been advised that some Soviet five-year diploma courses in scientific subjects may go somewhat beyond British first degrees. But, on the whole, we consider that the intensity of study required by an English course of three years and the greater amount of personal teaching makes it in many subjects equivalent to longer, less intensive and more impersonal courses on the Continent.

280. The case for a general lengthening of first degree courses from three to four years does not appear to us convincing. We would concede that a case can be made out for it in some subjects, including some branches of technology. But, on the whole, much that teachers in specialised courses would wish to include in an extended first degree course might well be better dealt with, perhaps by different methods, after the first degree. Those

* These figures relate to students entering in 1958/9. The average period of study in each sector of higher education is shown in Appendix One, Part IV, Section 8.

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who have shown both special aptitude and the desire for further study should certainly have the opportunity for it; but by no means all students would benefit from such an extension of their time of study or be any the better prepared by it for their future.

281. We are therefore not in favour of a general lengthening of first degree courses to four years. We think that for the majority of students three years of university education are still adequate, provided that first degree curricula are not overloaded, and provided that at least part of the university vacations is used for study. To the use made by students of vacations the Committee on University Teaching Methods, set up by the University Grants Committee under the chairmanship of Sir Edward Hale, devoted its recent interim report;* it concluded that a general lengthening of first degree courses would not be justified while students were not making proper use of vacations.

282. But in any case—and this explains the comparatively brief treatment accorded to the subject here—we think that a general lengthening of first degree courses to four years must have low priority in relation to the general claims of expansion. It would not be practicable at once to lengthen courses for all and to provide for the expansion of university places that we shall recommend as desirable.

283. We are, however, strongly in favour of opportunities for further study for those who by the end of the three years of a first degree course have shown both the special aptitude and the desire for it. This brings us to a discussion of postgraduate studies.

POSTGRADUATE STUDIES

284. In 1961/2 there were 19,400 full-time postgraduate students working in British universities.† Their detailed distribution among universities and faculties will be found in Appendix Two (A), Part I.

285. Of this total 4,500, or 23 per cent., were studying Education; most of these were taking one-year courses of professional training either immediately after graduation or at a more specialised level after a period of experience as school teachers. The principle that in England and Wales professional training should in due course become compulsory for all graduates if they are to become 'qualified teachers' has been recently reaffirmed by the Minister of Education. No date has been announced for the introduction of this measure and at present two thirds of the graduates who become teachers in England and Wales take the Certificate of Education course. University Departments of Education are at present reviewing the content and arrangement of these courses. For the purposes of the discussion in the remaining paragraphs of this chapter, students engaged in the study of Education have been excluded.

* *The Use of Vacations by Students* Interim report of the Committee on University Teaching Methods (H.M.S.O., May, 1963).

† There were also 665 full-time postgraduate students in institutions of further education: 275 in Colleges of Advanced Technology, nearly 260 at the College of Aeronautics, Cranfield, and about 130 in Regional Colleges.

University courses

286. Of the remaining 14,900 postgraduate students, 11,300 were engaged on research, most of them aiming at a Ph.D. degree. The other 3,600 were engaged on courses of one or two years' duration mainly providing advanced instruction in specialised or professional aspects of subjects that they had studied for a first degree; some of these students had returned to full-time study after a period of employment in industry or elsewhere.

287. Postgraduate students (excluding those in the field of Education) form 14 per cent. of all full-time university students, but Table 35 shows that the proportion varies widely between faculties and between university groups. In science, 20 per cent. of all students are postgraduates, compared with 17 per cent. in applied science, 15 per cent. in social studies and 9 per cent. in the humanities. The table also shows that London has in all faculties (except medical subjects) proportionately more postgraduate students than any other university group. London apart, the proportion of students who are postgraduates is larger in Oxford and Cambridge than in other university groups.

TABLE 35
Postgraduates as a percentage of all full-time students (excluding postgraduates studying Education): by faculty and university group
Great Britain 1961/2

Great Britain 1961/2							Percentage
	Oxford and Cam- bridge	London	Larger civic	Smaller civic	Wales	Scot- land	All uni- versities
Faculty							
Humanities ...	10	22	6	4	4	7	9
Social studies ...	15	31	9	4	10	8	15
Science ...	26	30	18	13	12	14	20
Applied science ...	19	28	18	15	13	8	17
Medical subjects ...	13	11	4	—	1	6	8
All faculties ...	16	23	12	8	9	9	14

Source: University Grants Committee

288. No less than 5,400 of these 14,900 full-time postgraduate students were from overseas, of whom some 3,800 were engaged in research and 1,600 were following courses of instruction.* It is a matter for congratulation that so large a number of overseas students come to this country for postgraduate study, and we hope and expect that their numbers will grow. But their inclusion in the total number disguises the fact that the number of home students at this level is small. At present some 20 per cent. of home graduates go on at some stage to full-time postgraduate study,† about 12 per cent. of them to research and 8 per cent. to courses of advanced instruction. Although the percentage of home graduates going on to do postgraduate work has been slowly growing in recent

* In addition 720 overseas postgraduate students were studying Education. Details will be found in Appendix Two (A).

† Excluding those in the field of Education (see paragraph 285).

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years,* these numbers are too small for the needs of the country and too small to represent a proper development of the intellectual powers of our young people.

The need for more postgraduate study

289. We would not argue for an increase solely or even mainly on the ground that the proportion going on to advanced work in this country compares so unfavourably with the proportion going on in the United States. Numerical comparison is made difficult by the wide differences in standard between American universities and by the differences in the nature of courses for first degrees here and in the United States: much of the work for an American master's degree is the equivalent of work done here in the final year of an honours degree. Even so the figures are worth noting. In the United States 2,300 per 100,000 of the age group go on to postgraduate study, the comparable figure in this country being 650.† Comparison of the proportions of the age group who obtain Ph.D.s is also striking. In the United States it is over twice as high as in this country: 500 per 100,000 of the age group there, compared with 200 here.

290. The general reason for demanding a rapid increase in the numbers going on to postgraduate work is that the enormous extensions of knowledge in all fields of study have made it impossible for a student to master more than the rudiments of his subject within the limits of a first degree course. Attempts to include too much in courses for first degrees have in some cases led to serious overloading and to neglect of a thorough grounding in rudiments. In science this is well recognised. It is less often recognised that in the humanities also there have been immense extensions of knowledge through recent developments of the technical means of acquiring it, and postgraduate study has become a necessity for any student who wishes to go on to research. The microfilm has made the contents of all the libraries of the world easily available. Civilisations and cultures that even fifty years ago were beyond the view of any but intrepid explorers now offer themselves for study. The continuous process of re-interpreting and re-assessing the achievements of mankind, on which the richness of a culture depends, demands a depth and range of knowledge today far beyond what was within the power of our grandfathers and even of our fathers.

291. But there are particular reasons why a rapid increase in the numbers going on to postgraduate work is needed. First is the need for more teachers in the rapidly expanding system of higher education. Second, the scientific and technological revolution that we are living through, the pace of social change, and the complexity of modern social and economic organisation all demand an increasing number of persons capable of understanding, developing and applying modern techniques in science and applied science and in the social sciences. Thirdly, apart from specific needs for growing numbers of highly trained persons, there is

* The details will be found in Appendix Two (A), Part I.

† These figures exclude those studying Education (see paragraph 285), and relate to 1961.

a natural presumption that the demand for postgraduate study will increase. As we have said earlier, every increase of educational opportunity at one level leads almost at once to a demand for more opportunity at a higher level. Experience shows that the appetite grows by what it feeds on. On the principles we have already stated, the demand should be met.

292. We do not wish to say anything or to suggest changes that would tend to discredit the high standing of our first degrees or imply that they were not the proper terminus of academic study for many people. We should expect that in future, as now, a substantial proportion of the ablest of our young people would go directly after graduation into the public service, industry, commerce and other careers. We are not recommending that all the most gifted students should extend their studies beyond a first degree, or indeed that further study should be the prerogative of the most gifted. Also we would by no means insist that, even for those who are to teach in universities, study beyond the level of a good first degree is necessary in all subjects. A period of consolidation is no doubt desirable for almost all prospective university teachers between a first degree and the beginning of their teaching career ; but it is not necessarily best spent in working for a higher degree. We hope that the notion that to hold a doctorate is an essential qualification for every applicant for a university post will never become established in this country. In the humanities, in particular, insistence on a higher degree or substantial publication as a *sine qua non* of appointment to a junior lectureship would be disastrous. Similarly, for some prospective teachers of technology experience in industry may well be preferable at this stage to postgraduate study.

293. But, subject to these considerations, it is clear that the great extensions of knowledge in every field of study have made it impossible to provide adequate training for many careers within the limits of a three-year course. In science and applied science new techniques are constantly being developed and training in their application is a potentially powerful influence on our industrial progress. Further training will also be needed by many students of the arts, such as those wishing to work in museums or in various branches of the social services. Also, if there are to be more first degree courses involving two or three main subjects, many who graduate in these courses, if they are to become professionally competent, will need to study at a higher level one of the subjects they have taken for a first degree.

294. Some kinds of training are most appropriately taken immediately after the first degree ; others may be more profitably taken after some years of experience in the world of affairs. In technology, for example, courses of up to one year's duration for those who, having had outside experience wish to qualify themselves in some new specialised field or new technique, have already proved of great value. There will be increasing need for this type of training. The same considerations apply to studies in commerce and management, a topic which we shall discuss at some length in Chapter X. We consider the development of such

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studies at the postgraduate level, particularly after the student has had some years of experience, to be a matter of urgent national importance.

295. Apart from training directed towards particular careers and professions, there is need for postgraduate courses to supplement the basic knowledge that can be acquired in first degree courses. The development of studies in the borderline between fields such as that between the physical and biological sciences, and the fringe between engineering and social studies, or between social studies and history, make it necessary that those who have graduated in one field should be able to obtain competence in the other and see the studies they have been engaged in from another side.

The need for more varied types of study

296. We shall deal at some length in Chapter XIII with the crucial importance of research in the universities. Supervised research leading to a higher degree will continue to be the means by which postgraduate students capable of launching out independently arrive at their point of departure as rapidly as possible. Nothing that we say on other forms of postgraduate work should be taken as reflecting on the supreme educational value, for those fit and anxious to do it, of carrying out an independent piece of work with the stimulus and encouragement that good supervision gives.

297. But, accepting this, we consider that postgraduate work is not only open to criticism on the grounds that there is not enough of it. It is frequently too narrowly conceived. The preparation of a master's dissertation or a doctoral thesis on a comparatively narrow subject is too often regarded as the sole or the most important form that work towards a higher degree should take. In many subjects the preparation of a thesis is not enough. There are general techniques and principles not covered by work for the first degree that need to be acquired even though they are not immediately useful for the particular subject of the thesis. In the great centres of graduate study in the United States not only the master's degree but also the doctorate require, in addition to the presentation of a thesis, the satisfaction of examiners by written and oral examinations in a wider field. While we would not wish to recommend a slavish imitation of the American graduate school, we recommend that the kind of training by formal instruction and seminars provided in the best graduate schools of the United States should be provided for research students in this country. Except in rare cases a research student should not be dependent for intellectual stimulus and training solely on a single supervisor. In the humanities and the social sciences the class and the seminar can provide the equivalent to the laboratory, whose fellowship is so great a stimulus to the young research worker in science.

298. We should like here to draw attention to what seems to us the excessive length of time that many students in the humanities and social sciences spend on the completion of theses for the Ph.D. There is some evidence of a tendency to expect a thesis in these fields to cover too extensive a field. To spend too long on an initial piece of research can depress rather than stimulate the intellectual energies of a young man or

woman, especially when the thesis remains to be completed in the first arduous years of university teaching.

299. In certain subjects and for certain people research directed towards the presentation of a thesis is not the best form of postgraduate work. In philosophy and economics, for instance, discussion of central problems at a high level is probably more rewarding to the young graduate than intensive investigation of one problem. We recommend a wide extension of courses of one or two years' duration in which the emphasis is on further study rather than on the preparation of a thesis, and which lead to higher degrees or diplomas. New awards are particularly desirable in the humanities, where the custom of reading for a second 'first degree' has virtually died; although it provided an admirable educational experience, it did not provide a higher qualification. It had always the disadvantage that it entailed a graduate working with less intellectually mature fellow students. The new degree at Oxford of B.Phil., which has rapidly established itself as a degree of high prestige, illustrates the kind of degree course we should like to see widely available, side by side with the present degree by thesis.

300. Table 36 shows the distribution of full-time home postgraduate students as between advanced courses of instruction and those engaged primarily on research. An analysis of recent developments in university postgraduate studies will be found in Appendix Two (B). A number of universities have already introduced courses of postgraduate instruction both in arts and science subjects; but the first column of Table 36 shows how far there is still to go. We believe there is much scope here both for the introduction of new courses of instruction and for support for them from industrial firms and other bodies that have special concern with particular fields.

TABLE 36
Type of course of home full-time postgraduates (excluding those studying Education): by faculty
Great Britain 1961/2

	Number			
	Number of postgraduates in		All postgraduates	
	courses of instruction	research	Number	Percentage on courses of instruction
Faculty				
Humanities	500	1,110	1,610	31
Social studies	500	425	925	54
Science	300	4,050	4,350	7
Applied science	435	1,695	2,130	20
Medical subjects	295	195	490	60
All faculties (excluding Education)	2,030	7,475	9,505	21

Source: See Appendix Two (A), Part I

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301. For all these reasons, we are convinced that the proportion of home graduates who go on to further study or research under appropriate direction and supervision should not only be maintained throughout the coming expansion of student numbers but should be substantially increased. We recommend that the present 20 per cent. should by 1980 have reached 30 per cent. At present the average length of postgraduate study is some two and a half years; for the additional 10 per cent. we think it will be appropriate to envisage an average period of study of about two years. Under this policy the number of home postgraduate students should rise from 9,500 in 1961/2 to 32,000 in 1980/1.*

Postgraduate awards

302. If the proportion of home graduates who go on to postgraduate work is thus to rise, support from public funds will be necessary for a high proportion of those who have the ability and the desire to undertake it. An account of the sources and distribution of financial support for students engaged in postgraduate work will be found in Appendix Two (A). For postgraduate study and research in science and technology the main present source of awards from public funds to home graduates are the Studentships of the Department of Scientific and Industrial Research.† In 1962/3 there were 3,500 such awards current; the number awarded each year has risen from 800 in 1957 to over 1,600 in 1962. About 30 per cent. of home science graduates and 20 per cent. of graduates in applied science go on to postgraduate study; of home postgraduates some 70 per cent. in science and 40 per cent. in applied science receive support from public funds.‡ In addition, a considerable number receive support from industry and other sources, particularly in applied science.

303. Nearly all postgraduate students who take the Certificate of Education course receive awards through the Ministry of Education. For all other postgraduate work in humanities and the social sciences the main source of support from public funds in England and Wales is the State Studentships offered by the Ministry of Education. There were 610 such awards current in 1962/3. The number of new awards available each year has been increased from the 240–260 offered when they were first introduced in 1957 to a figure of over 300 in 1962. In Scotland 45 State Studentships for postgraduate study or research in humanities or the social sciences were awarded in 1962/3 by the Scottish Education Department.§ Only some 15 per cent. of home graduates in humanities and some 20 per cent. of graduates in social studies go on to postgraduate work; some 35 per cent.

* These figures exclude Colleges of Advanced Technology (see Chapter X). They also exclude those studying Education (see paragraph 285).

† It was recently announced that, as from the academic year 1963/4, the awards made to postgraduate students by the Research Councils (which include D.S.I.R.) will each carry an additional sum of £200 per annum, payable to the university department concerned as a contribution towards the incidental costs incurred in the training of students.

‡ These figures relate to the year 1961/2, and are estimated.

§ For the academic year 1963/4 the number of Studentships offered by the Ministry of Education has been increased to nearly 400 and the number offered by the Scottish Education Department has been increased to 60.

of the home postgraduate students in arts subjects are supported from public funds.* We think the proportions of graduates in arts subjects who go on are too low, and the number of awards available from public funds inadequate.

304. We recommend that the provision of awards from public funds for postgraduate study should be reviewed, not only to correct the present imbalance of opportunity for further study and research in the arts as compared with the sciences, but also to ensure that sufficient support is available for the considerably increased numbers of students in all faculties who should go on to postgraduate work in the future.

The organisation of postgraduate studies

305. In addition to the deficiencies in the amount of postgraduate work in this country and in the variety of opportunity it affords, there are also defects in its organisation. While it is true that research is by its nature individual and the amount of formal teaching a research student needs depends on the student and the subject, the evidence of our student survey provided disquieting confirmation of a general impression that the universities do not take their responsibilities for the organisation of postgraduate study seriously enough. Apart from the general lack of formal training and seminars, there is also the problem of the negligent supervisor.† It may be that many able people require very little formal supervision and are happiest left alone. For the scientist the frequent informal contact in the laboratory may be the most valuable element in his training. But we have no doubt that in many cases research students feel themselves neglected and uncertain what they can do about it. A board of studies is a distant and impersonal body to the research student whose supervisor is habitually not available. The American student who can consult a Dean of Graduate Studies is in a far better situation than the research student in this country who knows that he is not getting the help he needs but has nobody to whom he can go for discussion of what his needs are. While we would not favour any separate organisation of academic staff concerned solely with postgraduate students, we think that the question: 'Who supervises the supervisor?' has not been faced in many of our universities.

306. In one other respect postgraduate studies in this country differ markedly from such studies in other countries. At present two out of three home postgraduate students are studying in the university where they took their first degree‡, and in the great majority of cases students do all their postgraduate work in a single university. While we recognise that the historic tradition of British universities has made them places in which a degree

* These figures relate to the year 1961/2, and are estimated.

† A description of the amount of teaching, supervision and guidance received by postgraduates, and the forms this takes, will be found in Appendix Two (B), Part IV. One fact which emerged from our survey was that 25 per cent. of these students saw their supervisors twice a term or less.

‡ These figures, however, conceal mobility between the separate schools and colleges and the specialised institutes of the University of London, where about one third of all the full-time postgraduates in the country are concentrated.

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means 'Here a man was taught' and not merely 'Here a man was examined', we think that the immobility of postgraduates is excessive. The benefit of moving to another university at the postgraduate stage, to study or to spend some time working with a distinguished scholar, would do much to diminish the parochialism that is the defect of the virtue of British universities. It is of the nature of postgraduate work, with its desirable specialisation, that different centres will present different attractions. It is plainly impossible for all university institutions to excel in all subjects. Unique or expensive facilities generate advanced work of high quality in certain fields and there is an inevitable concentration in some famous centres. Our complaint is that the postgraduate appears to be too fettered to his university of origin irrespective of whether it is the best place to study the subject he is interested in, and that, if he is among those reading for a higher degree, he seems, except in rare cases, to be rooted to the soil. He might gain more if, like the American or continental student, he were allowed to wander where he thought intellectual nourishment was to be found. We therefore recommend that, where it is educationally appropriate, more graduates who wish to go on to postgraduate work should be encouraged to do so at a university other than the one in which they studied for the first degree.

A COMMON POLICY

307. Both in the creation of new undergraduate courses and in the provision of more varied facilities for postgraduate students, we recommend that universities should consult together. It is desirable that the universities should complement each other in the provision of new courses and that there should be some attempt to secure a measure of uniformity in the nomenclature of degrees. It is particularly important that in the matter of diplomas and higher degrees there should be a general equivalence in standard and some uniformity in the nomenclature of awards. Other matters on which collaboration is desirable are the requirements for the doctorate in the humanities and the social sciences, the scope of new types of postgraduate course and means to promote greater mobility among postgraduate students.

CHAPTER IX

Colleges for the education and training of teachers

308. Arrangements for the education and professional training of teachers in England and Wales differ considerably from those in Scotland and for this reason the next steps in development will necessarily be different north and south of the Border. Yet the essential problem is similar in the two situations. The Training Colleges in England and Wales and the Colleges of Education in Scotland alike feel themselves to be only doubtfully recognised as part of the system of higher education and yet to have attained standards of work and a characteristic ethos that justify their claim to an appropriate place in it. The health of the whole public system of education depends upon the efficiency of the colleges: the problem is to define their place in terms of the two aspects of their work: that of providing a general higher education for increasing numbers of young people and that of providing teachers well prepared to meet the changing needs of the schools. Having defined the place of the colleges we have then to recommend academic, administrative and financial measures to enable them to secure it.

309. The colleges have so far concentrated exclusively on the education and training of teachers and, except for that proportion of students who come to them after graduation, which is small in England and Wales but considerable in Scotland, nearly all their students take a concurrent course of education and professional training.

310. There is a strong educational case for courses of this kind. Some young men and women who expect to be teachers prefer to take a degree first and to follow this with a course of professional training, and some graduates who enter the teaching profession may indeed not have decided to do so until near the end of their undergraduate career.* But there are others, and especially young women, who know while they are still at school that they wish to become teachers and who, other things being reasonably equal, would prefer a course of combined education and professional training to a university degree course. Among these are students who certainly could do well in a university degree course of the present type. For many students, too, a strongly felt professional purpose is a great incentive to the education that should accompany training in a liberal profession. This is something that the colleges have learned to turn to advantage. For example, a young woman with no great desire to take a degree in psychology but with a genuine interest in children may study their psychological development with an enhanced sense of relevance when it is combined with observation of children in school and practice in her future vocation.

* Statistics on choice of courses and career intentions will be found in Appendix Two (B), Part II.

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311. In recent years the great effort of the colleges has been to improve the general education of their students. They have long been recognised as giving good training in the narrower sense of the word. But the extension as from 1960 of the course in general colleges in England and Wales from two to three years (which has long been its duration in Scotland) and a steady rise in the effective standard of entry have given them an educational opportunity for which they have long pressed. The teachers of the future will have had the opportunity to be better educated than their predecessors, who had to combine professional training with higher education in a mere two years. Yet the colleges feel a lack of public recognition of their standards of work. Both in England and Wales and in Scotland about 40 per cent. of students who enter have satisfied minimum university entry requirements. The work done over three years by many of them in their one or two main subjects of study comes close to the level expected for these subjects in a university course leading to a pass or ordinary degree.

312. Since the establishment of University Institutes of Education* following the McNair Report of 1944,† and more especially since the lengthening of the course, the Training Colleges in England and Wales have felt themselves closer to the universities and desirous of coming more clearly yet into the university orbit. In Scotland they have increasingly felt themselves to be near-university institutions in their own right.

313. What should the general line of development be in future? Some colleges will wish to broaden their scope by providing courses, with a measure of common studies, for entrants to various professions in the social services. We think they should be allowed to do so as soon as practicable, although we believe it would be wrong to suppose that the needs of these professions are likely to be such as to require large-scale provision in the generality of colleges. Other colleges may wish to provide general courses in arts or science subjects. As Chapter XI will show, the scope for such developments as these will be restricted during the next ten years or so, because the whole capacity of the colleges will be needed to match the demand for teachers; but if our recommendations in Chapter XI about the expansion of the colleges during the next ten years are put into effect there will be opportunities for a good number of experiments with such courses later on in the 1970's.‡

314. It may be appropriate for some colleges, perhaps particularly those that broaden their scope beyond the training of teachers, to become individually constituent parts of a university. Others might combine with a leading technical college to form a new university or to become part of one. But we are clear that for the next ten years or so the great

* The function of the Institutes is described in Chapter IV and Appendix Four, Part I, Section 4.

† *Teachers and Youth Leaders* (H.M.S.O., 1944).

‡ There is a full discussion of the future demand for and supply of teachers in Appendix One, Part IV, Section 6.

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majority of the colleges, either of their own desire or through force of circumstances, will continue to be fully engaged in carrying out their primary function of training teachers. The predominant course will continue to be a concurrent one, and many of their students will enter college without having met the requirements for entry to present university courses. The question we have to answer is: what are the right arrangements, academic, administrative and financial, to recommend? It cannot be answered in a single set of terms for both England and Wales and for Scotland since, as we have said, the Training Colleges in one and the Colleges of Education in the other start from a different present position.

ENGLAND AND WALES

315. Ninety eight of the colleges in England and Wales are provided by local authorities and forty eight are provided by voluntary bodies, mostly religious denominations. They are all members of Institutes of Education which, with one exception, are institutes of the neighbouring university, and the directors of these Institutes of Education are associated in a national consultative body. They draw their students from all over the country and send them out to schools in every part of the country. Their staff are paid according to a national scale. They are financed partly from local funds (or those of voluntary bodies) and partly from the Exchequer. Central government has a further specific interest in the colleges, because the Minister of Education is responsible for securing an adequate supply of teachers; in this he is assisted by the National Advisory Council on the Training and Supply of Teachers.*

316. We shall return later to questions of finance and government and will consider first the number of colleges and their average size. One thing that may be said with certainty is that, if the country had to plan a system of higher education from the outset, the pattern of Training Colleges would be very different from the one that we have.

The size and scope of the colleges

317. There are 146 colleges, one with over 1,000 students, 126 with fewer than 500. Table 37 shows the number and size of the colleges in 1958/9 (before the present expansion began), in 1962/3 and—on present plans—in 1970/1. It may seem remarkable that until recently nearly 100 of the colleges had less than 250 students, but there is one advantage in so wide a dispersal that should not be overlooked. It arises from the need to find schools in the neighbourhood for the periods of practice teaching that come in every year of the course. This is cheaper and more convenient if it can be arranged without billeting students at a substantial distance from their colleges. If there were half the number of colleges there would probably be many more groups of schools virtually unused for teaching practice. This consideration makes it impracticable to concentrate the provision for the training of teachers into as few units

* The present arrangements for the administration and finance of Training Colleges are described more fully in Appendix Four, Part I, Section 4.

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as might otherwise seem desirable. Nevertheless, we are clear that a radical change from the present pattern is needed. We are glad to note that present plans go some way towards achieving colleges of more suitable size, and it is doubtful whether much more can be done in the immediate future.*

TABLE 37
Training Colleges: by number of students
England and Wales 1958/9-1970/1

	Number		
	Number of colleges		
	1958/9	1962/3	1970/1
Number of students			
1,000 students and over ...	—	1	10
750-999 ...	—	—	17
500-749 ...	3	19	55
250-499 ...	39	80	54
Under 250 ...	98	46	20
All colleges ...	140	146	156
Number of students ...	31,000	49,000	82,000

Source: Ministry of Education. (Detailed statistics on students in Training Colleges will be found in Appendix Two (A), Part II.)

Notes: 1. These figures include four Technical Teacher Training Colleges as well as the general and specialist colleges. They omit the 16 Art Training Centres.

2. Figures for 1970/1 are based on present plans.

318. Taking the longer view, however, dispersal in a very large number of colleges, nearly half of which are likely still to have under 500 students in 1970, would be purchased at a high cost in terms of educational efficiency. The spread of subjects is very wide in the Training Colleges as a whole, and although each college limits itself in the number of subjects taught to an advanced level, the present situation is not satisfactory: in our view the staff of any college should be large enough to permit of specialised teaching in many subjects. A small college is also bound to be at a disadvantage in diversity of laboratory provision and in library provision in specialised branches. Where colleges are reasonably close together, something may be done by co-operative arrangements in the teaching of certain subjects, but this is no real substitute for colleges of a more satisfactory size.

319. In Chapter XI we refer to the future supply of teachers and recommend that by 1980 the number of students in the colleges should increase from the present total of about 50,000 to about 130,000. This will

* We also support the Ministry of Education's current policy of concentrating particularly on the expansion of colleges that are in the neighbourhood of universities. Irrespective of the recommendations made later in this chapter, this policy could facilitate such developments as common student unions and other contacts between students and staff of the two types of institution.

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enable the average size of college to be raised well beyond the 1970 figure. We appreciate that there are a good number of colleges that could never grow beyond a modest size; but we are convinced that in the long term a college with less than 750 students should be regarded as exceptional. Indeed such a development is essential if the total number of colleges is to be kept to a reasonable figure and if the colleges' claim to a higher status is to be made good.

320. This claim also needs to be tested against the quality of the students and the kind and quality of the work done in the Training Colleges. Table 38 shows that 39 per cent. of the students entering the colleges in 1962/3 had two or more passes at the Advanced level of the General Certificate of Education.*

TABLE 38
Qualifications of entrants to Training Colleges
England and Wales 1962/3

	Percentage of entrants having		Numbers (=100%)
	3 or more 'A' level passes	2 or more 'A' level passes	
Men	16	41	4,800
Women			
General courses	14	39	10,700
Specialist courses	8	30	1,400
Men and women	14	39	16,900

Source: Association of Teachers in Colleges and Departments of Education.
(See Appendix Two (B), Part I.)

Notes: 1. The table excludes entrants to one-year courses.
2. Total numbers are taken from *Statistics of Education* 1962, Part 2, Table 35.

321. As we have seen in Chapter IV, the course has four components. First, there are the main subjects which are studied for their own sake and only secondarily from the point of view of learning to teach them to school children: half the students take one main subject and most of the others take two. Second, there are curriculum studies: these are shorter courses in subjects other than the main subjects and their purpose is the professional preparation of the future teachers. Third, there is the study of various aspects of Education as a subject. Fourth, there is teaching practice in the schools.

322. The standard reached by the students at the end of their course is difficult to compare directly with that reached by university students, because the nature of the courses in the two types of institution is rightly so different. But, as we have said, already a good number of students reach in their main subjects a standard broadly comparable with that of a pass degree, and we are sure that standards will rise as the full benefits of the lengthening of the course to three years are felt.

* More details will be found in Appendix Two (B), Part I.

Chapter IX

The availability of degrees

323. We now turn to a particularly complex problem: what academic awards should be available to students in Training Colleges? At present students who satisfactorily complete a three-year course gain a university certificate awarded through the Institute of Education to which the college belongs. The only colleges at which it is possible to get a degree are four in the London area, where selected students can work for a London external degree in a four-year course which includes professional training. The present number of students taking such courses is about 700.

324. Several of our witnesses have urged that teaching should become an all-graduate profession. Some meant by this that all students who have successfully completed a concurrent three-year course in a Training College should be given a degree. Others meant that all students should have a four-year course of one kind or another and that all those who passed should be given a degree.

325. As for the first of these propositions, we discuss later the difficult question whether students who take a concurrent course that is to lead to a degree should be enabled to obtain it in three years rather than four. But we are in no doubt that to give a degree to all students after a three-year concurrent course would involve either extending the concept of a degree well beyond the bounds that would be acceptable to most academic opinion or so distorting the courses taken by many students that they would no longer adequately equip them for many kinds of teaching.

326. The second proposition—a four-year course, including a degree, for all students—would be open to some extent to the same objections. But there are in our view two other powerful objections. First, we do not believe that at present most students want or need a course as long as four years. Secondly, the expansion of the Training Colleges required to meet the needs of the schools on the basis of a three-year course will stretch the colleges to the utmost between now and 1975; and although we think that even in the next ten years provision should be made for a growing proportion of students to take four-year courses, we do not consider, financial considerations apart, that it would be practicable to expand the colleges still further in that period so as to enable all students to do so.

327. But, although we cannot go as far as those who advocate an all-graduate profession, it would not be acceptable simply to allow the present situation to continue. As things stand, a student entering a Training College (unless it is one of the four London colleges mentioned earlier) automatically sacrifices the possibility of working for a degree. This barrier stands in the way of the many students who are fully capable of work at degree level, however strictly that might be defined. The opportunity to graduate must be created. We discuss later in this chapter the length and pattern of degree courses in Training Colleges, but we wish to emphasise now that, though the academic standard of the degree must be broadly related to what is customary in universities, the nature

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of the course and the approach to the various subjects should be such as to suit the needs of future teachers. No one would wish to see present university syllabuses arbitrarily imposed on the Training Colleges as a condition of making degrees available to their students.

328. Which students should be encouraged to work for a degree? We certainly do not think that all secondary school teachers should be graduates and all primary school teachers not. On the contrary, well-trained non-graduates are indispensable in a general secondary school system and much more useful for many posts than graduates with specialist degrees, and it would be an excellent thing if more graduates, men as well as women, entered the primary schools. Any division in the teaching profession between primary and non-graduate on the one hand and secondary and graduate on the other must be avoided.

329. Yet, although the courses in Training Colleges for which degrees are awarded (or which count towards a degree) should certainly include courses open to future primary school teachers, it is broadly true that the teacher of very young children has a particular interest in the child whereas the teacher of the academic streams in the upper forms of secondary schools has a particular interest in the subject he teaches. We are strongly opposed to any attempt to divide the profession by tying degree qualification to one type of school; but it is highly undesirable that future teachers of young children should feel under some kind of compulsion to attempt a degree course if it is not the course best suited to their needs and interests. Table 39 shows that half the students at present in Training Colleges are being trained for work in primary schools only and a further quarter for work in primary schools or the lower forms of secondary schools. It is in the infant schools that the shortage of teachers is at present greatest, and in the junior schools that it is next most severe. This is likely to remain the case for some time to come. Many students who would make excellent teachers in these schools will be best suited by the three-year concurrent course of the present type.

TABLE 39
Type of training taken by students on general courses in Training Colleges
England and Wales 1962/3

	Number			
	Men	Women	All students	Percentage of all students on each type of training
Type of training:				
Secondary... ..	6,000	4,400	10,400	25
Junior/secondary... ..	4,600	5,300	9,900	24
Junior... ..	2,200	6,900	9,100	22
Infant/junior... ..	100	6,300	6,400	15
Infant... ..	—	5,800	5,800	14
All students... ..	12,900	28,700	41,600	100

Source: Ministry of Education (provisional data)

- Notes: 1. The figures do not include students taking four-year combined courses for a degree and professional training, or those taking supplementary courses or courses of advanced study.
2. Those shown as training to teach infants include 800 taking 'infant/nursery' training.

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330. Nevertheless there are plenty of students in the Training Colleges who wish to read for a degree, and Table 38 has shown that, even if the opportunity were restricted to those with two or more passes at the Advanced level of the General Certificate of Education, the numbers would be significant.

The pattern of degree courses

331. What should the length of a degree course in a Training College be? It has sometimes been argued that degrees should be awarded simply on the results of a suitably strengthened three-year course. The practical training in teaching, it is said, may be regarded as equivalent to laboratory work in science. For the rest, it should not be impossible in the time available to take three subjects, Education as a subject itself and two others, making the equivalent of a three-subject general degree. The case is not without considerable force. But on closer examination it is seen to involve serious difficulties.

332. One difficulty is that of equity. If a graduate of a university is to become a trained teacher he has to take four years to do so, three for his degree and one for his postgraduate training, usually in the University Department of Education. Would it be right to allow those who go to Training Colleges to obtain the same combination, a degree and a professional qualification, in only three years? It is true that at present a graduate has the status of 'qualified teacher' in virtue of his degree alone, though he is not then eligible for a training increment in his salary. But the teaching profession has pressed steadily for this temporary concession to end, and the principle that professional training should in due course become compulsory for all graduates if they are to become 'qualified teachers' has been recently re-affirmed by the Minister of Education. With this in mind, the nature of the professional training to be given to graduates is at present being reviewed.

333. There are three further related arguments of some importance. Representatives of Training Colleges, in their discussions with us, have added to their express desire to be brought more effectively within the university orbit the qualification that they do not wish to see their purposes distorted by a routine application of university examination pressures to their own work and students. If a three-year degree course were approved for Training Colleges there would almost certainly be such pressure, and students who in their own interest ought not to try to pass an examination in Education and two other main subjects at general degree level at the same time as they were getting practical training would feel they must try to do so. If, as might be expected, this resulted in students attempting to gain university entrance requirements before they entered the Training College, then the effect on the schools would be serious. Boys and girls who were completing a good general school education that was within their powers would in many cases have to sacrifice this for the sake of gaining their specialised entrance requirements. Not all pressures are educationally wrong: indeed not. But they must be sensitively measured.

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If degrees on rather different terms are available to Training College students, there will be pressure enough ; but to introduce a three-year degree of reputable standard combined with practice in teaching would, we feel sure, be pressing too hard. Finally, we would note that the great advantage of a four-year, as contrasted with a three-year, degree course is that there would be no possibility of invidious comparison with the standard of degrees taken in a different context. For these reasons we have come to the conclusion that the degrees taken in Training Colleges should be based upon a four-year course ; and such degrees should be accepted as a suitable qualification for registration in universities for a higher degree.

334. The detailed arrangements will need careful consideration. For example, not all colleges will have the staff and facilities to offer courses leading to degrees, and students in those that do not will have to transfer to other colleges if they wish to study for a degree and are capable of the work entailed.

335. The universities and the colleges will wish to give much thought to the pattern of the degree courses. (The machinery for awarding degrees is discussed later.) We do not think that anyone can yet claim a monopoly of wisdom about the most constructive intermixture of theory and practice in the education and training of a teacher. The pattern should allow for experiment in this respect.

336. One possibility would be for students judged suitable for a degree course to begin a four-year concurrent course for this purpose at the outset of their college career. If this arrangement were adopted it would be important to provide an avenue of transfer to a later year of this course for other students who had shown by their work in the college that they were suited to degree work. This would be specially valuable for students who had not satisfied minimum university entrance requirements when they came to the college.

337. Another possibility would be to provide an initial common course for all students and divide them into a 'degree stream' and a 'non-degree stream' later. On this basis also opportunity to read for a degree would not be limited to those originally qualified for entry to a university.

338. In either case a minority of students might wish to transfer to a university rather than complete their degree course in the college. (For such students the strictly professional work would have to be completed in the college, unless it were followed by a later supplementary course.) We should hope that in so far as their capacity allows the universities would co-operate in arranging such transfers. The numbers would we think be small, but we are sure that there are some students who would gain special benefit from transferring to a university. We also expect that the universities will allow such students some remission of their normal requirements on account of the time they have spent in the colleges.

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339. As we have said, however, the majority of students reading for a degree will do so within the colleges. We do not feel able to estimate the number of Training College students who might attempt degree courses if the facilities were available. Too many of the factors are unknown. In Chapter XI we adopt the assumption that by the middle of the 1970's provision should be made for 25 per cent. of the entrants to Training Colleges to take a four-year course. We do not put the proportion higher than this because we feel sure that many students will not wish to take a four-year course before starting their careers, whatever their prospects in degree examinations; and we think that a good number of others will be well advised not to aim at a degree.

340. But, whatever long-term pattern may emerge, we think it very probable that during the rest of this decade more students will want to take a four-year course than can be accommodated. We recommend that arrangements should be made to enable such students to complete their qualification by part-time study at a convenient college or university after they have started their teaching career. In practice this would usually mean that, whereas the training qualification and the degree pass in Education and one main subject had been taken in the college, the second main subject would be taken by means of two or three years' part-time study.

341. What should the degree awarded to Training College students be called? We think it should be distinctive and recommend that it should be called a B.Ed. The provisions we have envisaged should make certain that it is regarded as a degree equivalent in standard to the B.A. But it would be a degree gained in a distinctive way, and characteristically based on the study of Education.

The future scope of specialist colleges

342. At this point it is convenient to mention the group of specialised colleges, often of high quality, that train women teachers of physical education or domestic science. They are presented with the problem of size. We consider that, in general, their future should lie in a gradual enlargement of scope and subjects covered, so that they expand their teaching of general subjects while retaining high standards in their specialisms.

343. Another group that requires separate consideration is that of the four relatively small colleges that offer a one-year course to teachers most of whom are destined for technical colleges. The students range from craftsmen to graduates and are much older than the normal run of Training College students. We see no reason why these colleges, which are already associated with Institutes of Education, should not be brought within the framework that we propose later in this chapter; but we think that their future should be considered in detail at a later stage when it becomes clear, among other things, what part the present Colleges of Advanced Technology are to play in the longer-term plan for the education and training of teachers.

Future administrative arrangements

Two possibilities considered

344. In the previous sections of this chapter we have discussed the size and academic development of the Training Colleges. We now have to consider how they should be administered in future. Which structure can best accommodate and encourage the kind of developments that we should like to see? One possibility, suggested particularly by some of those speaking on behalf of the local education authorities, is to leave with them and the voluntary bodies responsibility for the administration of the colleges that do not become autonomous, but to make arrangements that would ensure that the present most progressive practice becomes universal.

345. If this course were followed, the Institutes of Education would have to extend their academic function so as to form the link with the university senate necessary to enable degrees of the university to be awarded to appropriate students in the colleges. And there would be important developments in administration. In Chapter XV we recommend changes in the composition of governing bodies, in the procedure for appointing staff and in the financial arrangements for institutions of higher education under the control of local education authorities. If the Training Colleges were to remain under the local education authorities, it would be important that these principles should be applied to them.

346. We have considered these proposals with great care, for they have many merits. Remarkable progress has been made under the present partnership of the colleges, the local education authorities, the voluntary bodies, the universities and the Ministry of Education. The working out of the McNair Report and the development of the Institutes of Education, the emergency training programme immediately after the war, the subsequent series of expansion programmes, the founding of the day colleges, the introduction of the three-year course, the clearing house arrangements, the ingenuity with which accommodation has been used to the maximum, the expansion of courses for teachers already in service and for married women who wish to return to teaching: this is a notable record. Some of these successes could probably not have been achieved under any other administrative arrangements.

347. If in spite of all this we do not feel able to recommend the proposals outlined above, it is because we think that an organisation based on the present administrative structure does not—and cannot—go far enough. In our view the proposals do not sufficiently reflect the colleges' development into national institutions drawing their students from far beyond their own localities and sending them out to serve anywhere in the country. Nor do the proposals significantly strengthen the link between the colleges and universities. To this objective we attach great importance, because we think that it would greatly help and encourage the colleges and would at the same time give the universities a major responsibility for direct leadership in a vital sector of higher education that has so far been only marginal to their main activities.

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348. As a second possibility we considered a quite different and much more radical proposal. This stemmed from the view that the link between the universities and the Training Colleges had not proved as beneficial to the colleges as might have been hoped. The colleges were not in the main stream of university life, hardly any of their students could get degrees and in many cases the students and the staff could not share in the activities of the university. At the same time their semi-dependence on the universities had in the eyes of some people inhibited the leading colleges from developing to the stature that they might have achieved in different circumstances. They did not enjoy in this country the same sort of esteem as, say, the Leningrad Pedagogical Institute does in the Soviet Union, and the reluctance to introduce the kind of distinctions between colleges that has become a feature of technical education in recent years had prevented any of them emerging with the same vigour and effectiveness as the Colleges of Advanced Technology.

349. To meet these criticisms it might be argued that the system should be re-shaped on the basis of a structure separate from the universities and analogous to that of technical education. The majority of colleges would continue to be administered by their governing bodies under the aegis of the local education authorities or voluntary bodies, and academic awards, including degrees, would be made available through a central body on the model of the National Council for Technological Awards. The leading colleges would become autonomous either on their own or as constituent parts of a university new or old. It has been claimed that under such arrangements the colleges would have the best chance of developing vigorously and maintaining their characteristic approach to their work, and that in particular the leading colleges would be able to strike out more freely by themselves and to rise to a greater stature than they could do under any evolution of the present system.

350. We certainly want the colleges to maintain their distinctive ethos. But for many years they have turned their eyes towards the universities and we do not believe that they would now willingly look elsewhere even if there were other means by which degrees could be made available to their students. They would certainly be dismayed by the proposal implicit in the scheme that Institutes of Education should be either abolished or reduced to a minor consultative role. Moreover we do not believe that these proposals provide the only satisfactory way forward for the leading colleges.

Schools of Education

351. The solution that we recommend is one which, though it involves important changes especially on the administrative side, is very much in line with proposals in the McNair Report of nearly twenty years ago and is a logical next step from the Institutes of Education that were set up following it. The McNair Report offered two alternative schemes for closer association between the colleges and the universities.* The varying

* See Appendix Four, Part I, Section 4.

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arrangements made by the universities did not follow either of these precisely. What they did, however, was to bring the colleges of the region together with each other and with the University Department of Education in a federation under a University Institute of Education. They stopped a little short of the McNair Report's conception of such federations as Schools of Education of a university. We recommend a return to this basic conception, with some further features that seem to us called for by the new stage on which the colleges are entering. In recognition of this new stage, and of the arrangements for degrees that we have proposed, we also recommend that the colleges should be known in future as Colleges of Education.

352. On the academic side the School of Education would take over the functions of the present Institutes. The way in which this would fit the proposals for degrees we have made above is obvious. The degrees granted to students in Colleges of Education would be degrees of the university; and in all arrangements that it made for them the School of Education would be responsible to the university senate. For this purpose the School of Education would have its own academic board, as the Institutes do now for the certificate, and they would be responsible to the university for both degree and certificate work. Under the academic board would be appropriate boards of studies for different subjects (as there are now such bodies, under varying names, for the certificate). These would be separate from the university's boards of studies, but as degree work would now be involved there would have to be explicit cross-representation going beyond the present involvement of university teachers in the Institute's subject committees. There would be no difficulty in bringing the voluntary colleges into such arrangements, just as they are now brought within the academic arrangements of the Institutes.

353. The more radical feature of the Schools of Education that we propose, however, concerns their role in the government and financing of the colleges. For the reasons that we have given earlier in this section, we do not believe that the colleges can develop in the ways we have advocated and achieve their full standing in higher education unless they are accorded collectively within the university orbit a sufficient degree of autonomy. This being so, it is highly desirable that academic and administrative responsibility should go hand in hand. The colleges should now go forward in closer association with the universities not only on the academic but also on the administrative side. In particular, we think that the time has come for them to have independent governing bodies related federally to the School of Education and through it to the university.

The continuing role of local education authorities

354. Although the change that we are proposing involves a transfer of administrative responsibility from the local education authorities to the universities, we fully recognise the continuing interest of the former in the colleges both as institutions of higher education in their areas and as the suppliers of many of the teachers whom the authorities employ. We therefore recommend that at least a third of the members of the governing

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bodies of the colleges they at present administer and a substantial part of the membership of the governing bodies of the Schools of Education should be nominated by the appropriate local education authorities. We also recommend that, in recognition of the Minister of Education's responsibility for the supply of teachers to the schools, he should be invited to appoint two assessors to the governing body of each School. By these and other means the essence of the existing partnership will be preserved while the colleges are offered at the same time the opportunity of developing in ways that we do not believe would be practicable under any other arrangement.

The new system of finance

355. These changes necessarily carry with them changes in methods of financing the colleges. We discuss the machinery for this in Chapter XVII: we recommend a system of earmarked grants made by the Grants Commission through universities to the Schools of Education.

356. The position of the voluntary colleges requires special consideration. As we have said, there is no difficulty for them in the academic arrangements we have proposed. But the principle that an educational institution governed by a voluntary body should not rank for full financial support from public funds is a sound one, vital though support from public funds has been for these colleges.* A modification of the general financial arrangements will have to be made for them; but we see no great difficulty here in maintaining the present kind of arrangement made nationally on their behalf and certainly none that need be an obstacle to realisation of the general scheme.

University Departments of Education

357. The position of the University Departments of Education under our proposals calls for some explanation. We consider that they are an essential element in Schools of Education. We recommend therefore that each University Department of Education should either merge with or become a part of the School of Education of its university and its work should be supported by Exchequer funds as part of the earmarked grant given to the university in respect of the School.

The co-operation of the universities

358. A question that will certainly be asked is whether the universities will be prepared to assume the greater measure of responsibility for the training of teachers that our proposals involve. This will of course be a matter for each university to decide. We hope that they will decide to accept this responsibility. As we have said, our proposals constitute the appropriate next step in development logically inherent in the Institutes of Education, for which the universities have taken responsibility now for some fifteen years.

* Current expenditure attracts 100 per cent. Exchequer grant. Capital expenditure at present is eligible for 75 per cent. Exchequer grant.

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359. On the academic side we hope that the universities will see our proposals as a natural extension of the present work of their Institutes of Education on the colleges' behalf. The universities might, however, question whether they could add to their present burdens the administrative and financial responsibilities that our proposals would seem to imply. Here we would point out that the proposal for Schools of Education has been put forward as an arrangement which permits, and indeed entails, a considerable measure of devolution of administrative and financial responsibility. It is an important part of our recommendation that the universities' interest should be focused on major matters of policy only, and that a large additional burden of detail should not fall on the central administrative and financial officers. To ensure this it will of course be necessary for the Schools of Education to have well qualified administrative and financial officers, so that they may be able to advise the governing body of the School in the delicate task of dealing with grants to the constituent colleges for both capital and current expenditure.

360. No doubt, as with the proposals in the McNair Report, the universities will need time to consider what they feel able to do. Discussions, often extensive ones, will have to take place among all the parties concerned and the timing of the change in status we propose will require careful consideration in relation to the expansion of the colleges in the next few years. But we would emphasise that our proposals form a whole, even though agreement on some parts of them may be possible more speedily than on others. For example, in the conditions that are certain to prevail in the mid-1960's, it will be desirable to make degrees available as quickly as possible. We must make it clear, however, that in our view, which is supported by much evidence, the current discontent in the Training Colleges is not just a matter of wanting degrees. It goes much deeper and involves the whole standing of the colleges in the system of higher education in this country. To the solution of this problem we believe the key is an appropriate closer association with the universities without the loss of the essential links with the local authorities and schools. It is of course not necessary to the success of the scheme we have proposed that every university should be willing to accept it in its main lines, for it would be possible within a geographical region for a college to be a member of one School of Education rather than another. But clearly the scheme would fail if a substantial number of universities were unwilling to accept the responsibilities we propose. We hope very much that the universities will respond to this need. They have in the past shown themselves very ready to respond to a national need, and we believe this to be one. Their co-operation in this development would be of inestimable benefit to higher education in this country.

SCOTLAND

361. So far we have dealt with the Training Colleges in England and Wales. There are great differences between the systems north and south of the Border, and it may be helpful, before considering the questions that arise in Scotland, to summarise the most important of these differences. First, there are only seven Colleges of Education in Scotland, two of them much

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larger than any of those south of the Border: there are plans for an eighth*. Second, all intending teachers in the public system of education in Scotland, whether university graduates or not, must take a course of professional training; and all men teachers, other than those of practical subjects, must be graduates. Third, the colleges have their own governing bodies, which all include representatives of the teaching profession, and are not maintained directly by education authorities. Finally, although each university has a small number of representatives on the governing body of its neighbouring College of Education, the universities as such have no responsibility, academic or administrative, for the training of teachers in Scotland.

Present relations with the universities

362. Accordingly, while there is a perceptible discontent in Scotland, as there is in England and Wales, it must be recognised that it has different causes and takes different forms. Present lines of demarcation between the study of Education and psychology in the universities and in the colleges are by no means well defined. In other academic subjects, apart from arrangements made between individual teachers, there is sometimes little collaboration between university and college departments. There is some evidence of distaste among graduates, after their experience of the university, for college courses whose content provides a less stimulating academic atmosphere than that to which they have been accustomed in the university, although this distaste may be diminishing. There is also weighty evidence that the present and time-honoured training arrangements are not fully meeting the needs of the newer reaches of secondary education. It is at least open to question whether the traditional arrangement of a single year of professional training added to the three-year course of university study, but not planned with it, is the best or the sole method of preparation for teachers whose work in the schools will not necessarily be highly academic in character: the whole course has been criticised for its wide range of not always relevant subjects and for its lack of challenge to the graduate.

The availability of degrees

363. What, then, in the interests of education in Scotland as a whole—both in its higher reaches and in the schools—is the best path that the Colleges of Education can take for the future? We consider that it lies in the recognition of college studies, in certain courses at least, for the award of a degree. What we have said earlier in this chapter about the qualifications that are desirable for teaching at different levels we regard as of general validity and not peculiar to any one country. We do not suggest that a degree should be the goal of every course in Colleges of Education, nor indeed of more than a minority of their students. But we recommend that the Colleges of Education should develop courses of four

* Statistics on students in Colleges of Education will be found in Appendix Two (A), Part II.

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years' duration leading to a degree, and that these courses should be of a balanced, concurrent nature, liberal in content and approach, although directed towards the professional work that lies ahead.

A partnership with the universities

364. In considering what machinery should be provided to ensure the necessary academic standards we are clear that, when such courses are established in the Colleges of Education, arrangements should be made under university auspices and that preferably the degrees should be university degrees. We appreciate that it is unlikely that any new arrangements for this purpose would be considered appropriate if their effect were to be to bring such well established, and sometimes large, institutions as the Scottish Colleges of Education under the administrative control of the universities. Nor have the universities themselves expressed a wish for such a change. We also appreciate that, against the historical background and present structure of the Colleges of Education in Scotland, a solution in the form of Schools of Education as suggested for England and Wales would be regarded as unsuitable, just as the Institutes of Education adopted in England and Wales after the McNair Report did not commend themselves north of the Border. But we think that the value of closer academic collaboration between universities and colleges will not be in question, and we recommend that this should be secured by some measure of affiliation between individual universities and Colleges of Education, with the university concerned making degrees available to some students in the college.

365. Such a scheme would require closer contact between university and college staff. It would require recognition by the universities of individual teachers in the colleges, co-operation between the two kinds of institution in academic matters and guidance by the universities on academic standards. If in any instance where degree courses for college students were justified arrangements of this sort could not be made, another solution involving a system of Academic Advisory Committees would have to be devised.

366. The name of the new degree presents difficulties different from those found in England and Wales because of the existence in Scotland of the Ordinary ~~degree~~ on the one hand as a first degree in arts, and the B.Ed. on the other as a postgraduate honours degree in Education of long standing. It would on balance seem to be desirable to rename the postgraduate Education degree so that B.Ed. would be available for the new degree.

367. Since the recommendation in paragraph 364 would imply a partnership between the universities and Colleges of Education, some of the differences between them should be reduced. For example, the fact that the present governors of the Colleges of Education in Scotland, though they include teachers, do not include members of college staff, does not permit that element of self-government which we advocate in Chapter XV.

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We recommend, therefore, that the principal and some elected members of the teaching staff should be added to the governors of each College of Education.

368. In the four-year course leading to the new degree in Education, academic study and professional training would be combined as seemed appropriate to the boards of studies that we recommend below. At present the three-year certificate courses at the Colleges of Education are confined to women. It is likely in the future that a number of men who intend to teach in primary or junior secondary schools may wish to qualify themselves through the new degree. Such a change is to be welcomed, since the new qualification should be more closely related to the kind of teaching needed in these schools.

369. The new degree should be restricted to the academically abler students at the Colleges of Education. But selection for it should depend upon the standard achieved in the work of the first two years, and, as in England and Wales, should not be limited to those who had university entrance qualifications at the beginning of their college course.

370. We recommend that the Colleges of Education should set up boards of studies for each of the areas in which degree level work is established. Which these are to be will depend upon the provision that exists in any particular college. The universities, and perhaps school teachers, should be represented on these boards. Further, since the universities are being asked to recognise certain members of staff in the colleges as fitted to teach for an internal degree, the university members of college boards of studies should be invited to express an opinion on the appointment of staff in those departments that are responsible for degree level work.

371. To simplify the relationships between the universities and the Colleges of Education as a whole, the smaller colleges not linked directly with a university might each be linked, so far as any degree level work is concerned, with the appropriate large college through a common subject board and common examination.

University Departments of Education

372. The position of University Departments of Education in Scotland requires consideration. At present they participate in the teaching of those postgraduate students at Colleges of Education who wish to take the university Diploma in Education as well as their course of professional training. But the Departments of Education are sometimes geographically and in other ways remote from the life of the colleges and the professional aspects of teacher training. Since it is the aim of our recommendations to bring about a closer collaboration between the universities and the Colleges of Education, we recommend that, unless they are pursuing some specialist qualification, all graduates in arts and science who wish to become teachers should take the course for the Diploma in Education. Because this is primarily a qualification for teachers, responsibility for its conduct should rest with a joint board of studies from the university and the College of Education.

Administrative arrangements

373. There remain the difficult questions of administration and finance. Our object is to frame proposals that both enhance the status of the Colleges of Education and leave the way open either for closer association with the universities or for a status independent of them. It would be inconsistent with the principles outlined in Chapter XVII if the Scottish Colleges of Education were to be associated with the universities in the way outlined above and were to teach to degree level without being financed on the grants committee principle. On the other hand, the differences north and south of the Border make it impracticable to envisage a single committee dealing with Schools of Education in England and Wales and with Colleges of Education in Scotland. For this reason, we recommend that the grants machinery outlined in Chapter XVII should include a separate education committee for Scotland, to which the Grants Commission would delegate its responsibilities in relation to the Scottish Colleges of Education. Coupled with the arrangements which we there describe for ministerial responsibility for the Grants Commission as a whole, this should ensure that all necessary account will be taken of the distinctive features and problems of the Scottish educational system, of which the training of teachers is one of the most characteristic parts.

CONCLUSION

374. At present the students in Training Colleges and Colleges of Education, the great majority of them taking three-year courses leading to a professional qualification, represent a quarter of all the full-time students in higher education. We shall recommend in Chapter XI that there should be a big expansion in numbers and that in 1980, leaving out of account the colleges that achieve university status, the proportion should be similar. But there will be two important differences. By the middle of the 1970's we expect that a substantial number of the students will be taking four-year courses leading both to a university degree and to a professional qualification; and we hope that, long before that, the colleges in England and Wales will have been federated in University Schools of Education, that those in Scotland will have forged strong links with the universities and that both groups will be financed by the body responsible for university grants. These developments would ensure for the colleges a role in higher education even more important in future than today.

CHAPTER X

Institutions for technological education and the system of further education

375. In this chapter we shall first make recommendations about technological institutions of university level, dealing in particular with the need for special action to promote the further development of selected institutions and with the granting of university status to the Colleges of Advanced Technology and their Scottish counterparts. We shall then make proposals about the rest of the system of further education; both in technology and in other subjects, the need for development here is no less pressing.

INSTITUTIONS OF TECHNOLOGY AT UNIVERSITY LEVEL

376. In the past hundred years Royal Commissions and many other bodies have repeatedly urged the need for more and better technological education. Since 1945, under the stimulus of the Percy* and Barlow† Reports and, later, of the White Paper of 1956,‡ rapid progress has been made. At university level there have been two complementary policies: the rapid expansion of technology within the framework of existing university institutions and the vigorous encouragement of the leading colleges outside this field. The most prominent landmark of the first policy was the selection in 1953 of the Imperial College of Science and Technology and other university centres for special development. The most striking feature of the second was the designation in 1956 of the first Colleges of Advanced Technology.

377. All these efforts have notably improved the position. But a great deal remains to be done. This applies to both science and technology, but particularly to the latter. Our first-hand study of some of the great institutions overseas has left us in no doubt of this; and comparative statistics such as those in Table 40 show that in Britain, within the total field of science and technology, less emphasis is given to technology and more to pure science than in any of the other countries listed.

378. Moreover, our student survey showed that science not only attracts greater numbers but also attracts students of better quality than does technology. Some 30 per cent. of undergraduates in science in England and Wales in 1961/2 had three or more Advanced level passes with a mark of 60 per cent. or more in the General Certificate of Education. Only 11 per cent. of students of technology possessed similar qualifications.§ Means

* *Higher Technological Education* (H.M.S.O. 1945)

† *Scientific Manpower* (Cmd. 6824, 1946)

‡ *Technical Education* (Cmd. 9703, 1956)

§ More details will be found in Appendix Two (B), Part I. The same point is made by the latest report of the Advisory Council on Scientific Policy (Cmd. 2146), which refers to other survey evidence on the quality of entrants to courses in technology.

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TABLE 40
First degrees in technology in various countries as a percentage of
first degrees in science and technology
1959

								Percentage
Great Britain ...	...	...	...	...	...	...	...	36
Canada ...	...	...	...	...	...	...	...	65
France ...	...	...	...	...	...	...	...	48
Germany (F.R.) ...	...	...	...	...	...	...	...	68
Netherlands ...	...	...	...	...	...	...	...	60
Sweden ...	...	...	...	...	...	...	...	54
Switzerland ...	...	...	...	...	...	...	...	59
U.S.A. ...	...	...	...	...	...	...	...	49

Source: See Appendix Five, Part I

must therefore be found to attract more of the ablest students of technology. In particular it is desirable to encourage more girls to read applied science. At present, very few girls in this country seem to be attracted to a career in applied science, and the contrast with some other countries, notably the Soviet Union, is very striking.

379. Before we come to our major recommendations about the future of particular institutions, we wish to make some general proposals which affect all technological institutions at university level.

380. In Chapter VIII we recommended that there should be no general lengthening of the three-year course leading to a first degree, but that the amount of postgraduate work should be considerably increased and that, in particular, this should allow for the growth of postgraduate courses of study lasting for one or two years. This recommendation applies with special force to science and technology. A three-year undergraduate course is not long enough to meet the interests of many students, or to satisfy professional needs in many kinds of employment. There is no reason to fear that our recommendation will cause an excessive number of students to delay unduly their entry into productive industrial activity. In 1961/2 the total number of home students attending postgraduate courses of instruction in science and technology in the universities and Colleges of Advanced Technology was under 1,000. There is therefore ample room for expansion before a danger point could be reached.

381. In research, too, technology lags behind, and once again this country suffers in comparison with others. This is a question of volume rather than quality: our best research in technology can stand comparison with similar research anywhere in the world, but it is inadequately supported from both public and private sources. We therefore recommend that a major effort should be made to encourage an increase in technological as well as scientific research. We recommend also that

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the links between institutions at university level on the one hand and government research establishments and industry on the other should be strengthened. We revert to this topic later.

382. One of the most difficult problems facing those responsible for technological education is how far to give free rein to fresh developments wherever they may be proposed and how far to concentrate in selected centres. Concentration of specialised activities among the various universities and colleges already exists in some degree, but in our view further measures are needed. We are strongly in favour of building up large institutions and large faculties so as to ensure that individual departments will be able to undertake an adequate range of study and research and that the maximum use will be made of costly equipment.

The need for Special Institutions for Scientific and Technological Education and Research

383. The massive expansion we have proposed for higher education as a whole will facilitate the building up of larger institutions and faculties. The recommendations we make later about the future of the Colleges of Advanced Technology and their Scottish counterparts should powerfully assist this process. But we believe that a further striking innovation is required if this country is to demonstrate beyond all doubt that it is prepared to give to technology the prominence that the economic needs of the future will surely demand. Our recommendation is that there should be developed as soon as possible a small number of Special Institutions for Scientific and Technological Education and Research. In making this proposal we have been much influenced by the fact that there is as yet in this country too little that compares for both scope and scale with the great institutions abroad that we visited, such as the Massachusetts Institute of Technology and the Technical High Schools at Zürich and Delft.

384. These Special Institutions should be university institutions. Their main emphasis should be on technology, in partnership with science. We desire no rigid uniformity, but we are clear that the institutions must share certain characteristics. First, the centre of gravity should be in science and technology. But other related subjects such as social studies, operational research and statistics should be developed on a significant scale, and languages will be needed at least as ancillary subjects. Second, the institutions must be large, so as to cover a wide range of subjects with an appropriate division of labour within each. From 3,500 students to 4,500 students is the size we have in mind. Within this total the main divisions might be as follows: science at least 1,000, technology at least 2,000; other students, perhaps 1,000 or more, would be distributed according to the individual character of each institution. Third, there must be a strong emphasis on postgraduate studies: postgraduate students ought to form about half the student body. There should be ready access at postgraduate level for graduates from other university institutions,

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as well as special facilities for scientists and technologists to return after a period of experience in industry. Fourth, as with all postgraduate work, it will be essential to have good staffing ratios, a liberal proportion of senior to junior posts, and adequate provision of equipment and technical assistance. Only by these means will it be possible to attract staff of the high calibre needed for research and to carry out the educational experiments necessary in this field. We hope that there will be easy movement of staff both to and from governmental and industrial research. We return to this point in paragraph 402 below.

385. In countries such as the Netherlands, Switzerland and Sweden, which owe much of their prosperity to skills and the wise use of limited resources, there is at least one special institution of this kind to about six or seven million of the population. On this basis we might argue that this country should have seven or eight. At the present time there are three institutions, in London, Manchester and Glasgow which—at various stages of development—are evolving on this model. The Imperial College of Science and Technology plans to have about 3,500 students in 1966/7, of whom about 45 per cent. will be postgraduate students. The Manchester College of Science and Technology will have about 3,000 students, of whom 25 per cent. will be postgraduate students. The Royal College of Science and Technology at Glasgow should have nearly 3,000 students, with up to 20 per cent. engaged on postgraduate work. But even when these institutions have reached the total size and the proportion of postgraduate work postulated in paragraph 384, there would appear, purely on the basis of population, to be room for four or five more.

386. This, however, would be to ignore existing technological faculties (or their equivalent) in other universities, as well as the potentialities of the Colleges of Advanced Technology and corresponding colleges in Scotland. This lessens the need for Special Institutions, and we recommend as an immediate aim the full development of five such institutions in all. The three mentioned above, in London, Manchester and Glasgow, should aim to expand their numbers and their proportion of postgraduate work to optimal size as rapidly as possible. We propose a different origin for the other two. Strong arguments can be advanced both for the development of existing institutions and for the creation of an entirely new institution. We recommend that one Special Institution should be a new foundation—in effect, the technological counterpart of the new universities. Such a new foundation could experiment boldly, unfettered by existing affiliations either with universities or with further education. It is important that the site provided should be large enough for large-scale experimental work and future development. The fifth Special Institution should, in our view, be developed from a selected College of Advanced Technology: this will require, in particular, a large development of the postgraduate work.

387. The main requirement is that in all five Special Institutions, both the three that already stand out and the two that will join them, development must be pushed forward with all possible speed. The whole group

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needs financial support similar to that given to the Imperial College of Science and Technology during the past decade.

388. The Special Institutions need not all have the same constitutional status. The Royal College of Science and Technology, Glasgow, is now to be an independent university institution. We recommend that the two new Special Institutions should also be constitutionally independent. As for the other two, it is possible that a satisfactory solution could be reached on the basis of federal arrangements of a liberal kind within the existing universities of which they form part. This would have to be the subject of special study.

The Colleges of Advanced Technology

389. Since their designation from 1956/7 onwards the Colleges of Advanced Technology have made remarkable progress. Over 90 per cent. of the full-time students are taking advanced* courses, a great deal of lower-level work having been shed in the period since designation. The number of advanced full-time students in the ten† colleges now designated has grown from 4,700 in 1956/7 to 8,900 in 1961/2 and 10,300 in 1962/3: the nature of their courses in 1962/3 is shown in Table 41. Much of the expansion has been associated with the introduction of the Diploma in Technology, and in 1962/3 four fifths of all students for this qualification were studying in these ten colleges. The Diploma in Technology is particularly associated with sandwich courses—courses which involve alternating periods in industry and college. This is but one, though perhaps the most notable, example of the orientation of the Colleges of Advanced Technology towards industry, a connexion which is proving of particular value.

TABLE 41
Advanced students in Colleges of Advanced Technology: by type of
course and method of study
England and Wales 1962/3

Type of course	Number			
	Full-time	Part-time		All students
		Day	Evening	
Postgraduate	400	150	300	850
First degree	1,950	400	150	2,500
Dip. Tech.	5,650	—	—	5,650
H.N.C./H.N.D.	250	1,750	900	2,900
Other	2,050	2,800	2,250	7,100
All students	10,300	5,050	3,650	19,000

Source: *Statistics of Education* 1962, Part 2, Table 15

* This is work as defined in Chapter I, paragraph 6. Detailed statistics about the Colleges of Advanced Technology and about other colleges dealt with later in this chapter will be found in Appendix Two (A), Part III.

† These are listed in Chapter IV (Table 13).

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390. We consider that the present powers and status of the colleges are not commensurate with the work they are now doing. They lack many of the attributes of university self-government;* they have not full power to award their own qualifications, and in particular cannot award degrees, despite the fact that their curricula, staffing and facilities are adjudged by the National Council for Technological Awards to be appropriate for work for honours degrees.

391. It is anomalous that such colleges should not have the power to grant their own degrees. Many of them have a long history and extensive academic experience. While the universities founded in the last two or three years are allowed to award degrees from the beginning, subject only to the presence of an Academic Advisory Committee, these colleges are kept in a position of tutelage so that they are less attractive to students and their recruitment of staff is impeded.

392. We recommend that in future these colleges should in general become technological universities, and that this should be recognised in their title if they so wish. We say 'in general' since it is possible that some of the colleges may reach an agreement to become technological faculties of an adjacent university. But, while this is to be welcomed if there is full consent, some precedents point to the need for caution: on the whole we think that the colleges are more likely to preserve the new look and the new approach to education on which they pride themselves if they develop independently. It is also possible that one or two colleges may seek a marriage with other educational institutions that would lessen the present predominance of technology. In this event the title of technological university would not be suitable, but otherwise it is entirely appropriate.†

393. It is clear that those institutions that do not become part of another university should have the right to grant their own degrees. This conclusion has commended itself to the Committee of Vice-Chancellors and Principals, and we have found no objection to the general principle in any quarter. We recommend that the colleges should have power to award both first and higher degrees.

394. It also follows that these institutions should have the forms of government appropriate to university status. For example, the boards of studies should assume the character and powers of a university senate, and in other ways the organs of government should conform to the principles we shall lay down in Chapter XV. The relationship of the colleges to central government is dealt with in Chapter XVII, where we recommend machinery on the lines of that used for financing universities.

395. We recommend that immediate steps be taken to grant charters‡ and to transfer responsibility for finance to the body responsible for university finance. In this respect the status of the Colleges of Advanced Technology should at once become equivalent to that of existing universities. As regards

* The administration of the colleges is described in Appendix Four, Part I, Section 5.

† See the note in Appendix Four, Part I, Section 1, paras. 12-14.

‡ See Appendix Four, Part I, Section 1, paras. 10-11, on the significance of charters.

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powers of self-government, we recommend that an Academic Advisory Committee, similar to the committees which the University Grants Committee has established for each of the new universities, should be created for each college. These committees should be charged with the duty of reviewing courses and approving the arrangements for degrees, including the appointment and the service of external examiners. They would also satisfy themselves about the procedure for appointing academic staff. They should continue to discharge these functions until such time as the institutions are judged ripe for complete independence. We expect that for some of the colleges arrangements of this sort will not prove to be needed for more than a very short period.

The scope and size of the colleges

396. Turning now to the scope of the colleges, 90 per cent. of the students at present take courses of science or technology.* We expect the proportion of postgraduate students to increase from about 4 per cent. now to perhaps 15 or 20 per cent. in the future. The central feature of the colleges should continue to be teaching and research in the sphere of technology: when they are granted charters, we think it appropriate that some indication of this should be given.

397. This must not, however, prevent development in other directions. The colleges should be strengthened in the sphere of pure science and we welcome the desire already apparent to extend in the direction of social and humane studies. This will sometimes take the form of special departments devoted to the development of management and business studies on a considerable scale: the need for such developments we discuss below. But even where separate departments do not develop substantial work in their own right, there is scope for a widening of the horizons for students of science and technology. Examples of what we have in mind are studies of the economic and social problems likely to concern the students in their careers and of the social and æsthetic implications of the forms of production in which they may be engaged. There may easily be opportunities for existing Colleges of Commerce to join with them in such developments. We also recommend the development of modern language studies: this is a matter to which we draw special attention in paragraph 414 below. If all such developments take place, and if there is a proper expansion of the central core of science and technology, we should regard a student population of some 3,000 to 5,000 as an appropriate size for the colleges in their role as technological universities. Most of the colleges already have such a size in mind.

Scotland—the Central Institutions

398. Scottish Central Institutions, as we pointed out in Chapter IV, do not form a homogeneous group. The Royal College of Science and Technology at Glasgow, which until recently was still in name a Central Institution, has long received grant from the University Grants Committee

* If full-time students alone are considered, nearly 95 per cent. take courses of science or technology.

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as well as from the Scottish Education Department. It has now been given university status and it is one of the institutions that we have earlier singled out for development as a Special Institution for Scientific and Technological Education and Research. Excluding the Royal College, the Central Institutions between them had some 5,000 advanced full-time students in 1962/3. Six of the colleges had more than 500 students at this level. The largest colleges concentrate mainly on advanced work and some are fully comparable with the Colleges of Advanced Technology.* All the Central Institutions are independent colleges receiving grant direct from the Scottish Education Department, or (in the case of the Agricultural Colleges) from the Department of Agriculture and Fisheries for Scotland. Most of them have been established for many years, and some have had a long association with an adjacent university, although the nature of the association has varied from time to time and from place to place.

399. Since their circumstances differ, we recommend a varied pattern of development for these colleges. Those at the most advanced stage of development in the range and standard of their studies might adopt by mutual agreement a close form of association with an appropriate university: the college would be constituted as a department, faculty or other division of the university. To ensure the most economical use of available resources, it might be necessary for such a college to continue to provide non-degree courses of an appropriate standard to meet local needs. If, in the event, agreement on association should prove unattainable, an alternative course for the largest of these colleges would be to remain as separate entities with power to award their own degrees, in the same way as Colleges of Advanced Technology in England and Wales.

400. For the remaining institutions, which are not yet at the same stage of academic and physical development, an appropriate path for the future might be to devise some form of academic association with the Royal College in its new role. If this is impracticable or unattractive, we recommend that the arrangements proposed below for the Regional Colleges in England and Wales should be extended to these colleges.

401. In general we think that the future of the Central Institutions must be worked out in detail in Scotland in the light of national needs and local circumstances. We would mention only two general considerations which we think should have overriding effect. The first is that students in Scotland should be able to receive the same kind of award as their counterparts in England and Wales. The second is that in a small country like Scotland there is great need for flexibility, since the large student numbers essential for a clear division of functions between institutions will not always be forthcoming. To ensure efficient use of staff and expensive equipment, and to serve the interests of students at different levels, a single institution may have to provide a greater variety in courses of study than elsewhere.

* For statistical purposes, in estimating the capacity of universities in the future, we have in later chapters included the Heriot Watt College, Edinburgh, and the Scottish College of Commerce, Glasgow, with the Colleges of Advanced Technology.

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Links with government research establishments and industry

402. There should be closer co-operation of institutions at university level both with research establishments and with industry. Some of our witnesses have suggested that certain research establishments might form the nuclei of new universities. We do not think this desirable, for experience in the United States suggests there may be danger for an educational institution that subordinates its needs to those of a dominant research centre. Nevertheless, we are clear that in Great Britain there is scope for much closer relations with the research establishments, especially those maintained by the Government. Closer links are also needed with industry. Many institutions have hesitated to form such links from a fear that industry might attach strings. There are problems here, but they should not be exaggerated.

403. The complex, and sometimes unique, facilities of the research establishments are national assets much too valuable to remain isolated from the educational system. Collaboration is especially needed in fields where there are no comparable facilities in universities or colleges. More research should be carried out by students under the joint supervision of academic staff and the staff of a research establishment: if joint arrangements for supervision are made it will be possible for work in the establishment to form part of a project leading to a higher degree. The Research Councils and the new machinery of government we propose in Chapter XVII should have a special responsibility to encourage this and other forms of collaboration.

404. There should be much freer movement of staff between higher education, government research establishments and industry. Institutions of higher education should invite more part-time assistance in teaching from staff employed in other fields. As we point out in Chapter XII, such part-time help will be especially needed by universities and colleges in the period of expansion ahead. Closer contact with education may provide scientists employed in research establishments with new interests and may introduce a possible flexibility into the careers of some whose interests are no longer predominantly in research.

Business studies and education for management

405. We now deal with a problem that has been much to the fore in public discussion recently: the place in higher education of business studies—in which we include a wide range of studies relating to industrial as well as commercial needs—and of education for management. It is convenient to deal with the problem here for two reasons. First, some of the disciplines involved stand in much the same relation to abstract social and economic subjects as technology does to pure science. Second, while experiments in these fields have certainly taken place in some universities, they have also taken place in Colleges of Advanced Technology, Central Institutions and in other colleges.

406. There is an important distinction between the study of a group of subjects relevant to business problems—commercial law, industrial

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psychology, accounting, statistics and operational analysis are conspicuous examples—and education for management as such.

407. The former subjects are well developed. In each case there is a sizeable body of agreed principles and a readily accessible and intelligible literature. They are eminently suited for study at the first degree level, either in combination with courses in social studies or grouped with technology.

408. Education for management as such, however, is a subject of considerable perplexity, and opinion is divided on what methods of training are appropriate. Many of our witnesses have complained that the present educational arrangements for management education are deficient. This country, it is urged, does not provide the training for management that is needed if it is to hold its own in the modern age. Education in individual techniques is provided at the undergraduate level, but this is not specifically directed to management. At the postgraduate level, where education of this sort should be chiefly at home, there is nothing comparable to the great business schools of the United States. The case is energetically argued by various groups of business leaders ; and since our sittings began the National Economic Development Council has lent them its weighty support.

409. Some of these representations tend to underestimate experiments now being made. There are already available, in certain universities, Colleges of Advanced Technology and other colleges, courses taken at the postgraduate stage that specifically attempt to meet this need ; and although there are difficulties in providing adequate staffing, they will no doubt continue to develop. But the problems of devising such courses are often under-estimated. In the first place, it is impossible to devise any course of education or training that can automatically and correctly select future managers ; and it is difficult to devise one for those who have had no experience in industry or commerce. The most appropriate time for many students to take a course is when they have already begun to establish themselves in careers. Moreover, there are serious intellectual problems involved. It is easy enough to repeat, at the postgraduate stage, courses in the individual disciplines already mentioned. But to provide an education for management as such is not so easy ; and opinion here and in the United States, where it is attempted on a large scale, is divided on the appropriateness of various methods.

410. Nevertheless we agree that the present situation is not satisfactory. Education of this sort must be properly organised and carried out in a milieu in which fruitful research in the subjects is going on simultaneously. It must therefore be on a large scale. The small department is often at a special disadvantage, especially in a sphere where the positive collaboration of business is an essential condition of success. We therefore recommend that at least two major postgraduate schools should be built up, in addition to other developments already probable in universities and other institutions.

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411. There are two conditions to be fulfilled if these schools are to prosper. First, they should each be associated with a well established institution—a university or a Special Institution for Scientific and Technological Education and Research. Problems will arise in such an association: the difficulties about pay differentials in universities may certainly hinder the recruitment of suitable staff. Nevertheless, we have no doubt that association with an existing institution is preferable to beginning from scratch outside the present confines of higher education. An adequate background of expert knowledge in all the different disciplines that must be involved can only be provided in this way.

412. Secondly, we think it is important that these schools should be situated in the neighbourhood of large business centres. Continuous contact is best maintained through close proximity, and such educational enterprises can only be properly staffed if they have recourse to a good deal of part-time assistance. The limitation on salary differentials to which we have just referred must make it extremely difficult to recruit certain kinds of talent and expert knowledge on a full-time basis. On a part-time basis much more can be done; and this kind of collaboration might make possible developments, otherwise difficult to achieve, in the field of systematic knowledge. Schools of management—like schools of art—are likely to gain by the employment of those who have been successful in their professional careers.

413. Finally, there is scope in a number of centres for courses of management education for persons of mature years who wish, at late stages in their careers, to refresh their minds by instruction in recently developed techniques and by systematic discussion with academic teachers concerned with their activities. The notable success since the war of the Administrative Staff College at Henley has shown that experiments here are likely to meet with a ready response. We believe that there is scope for further experiments of this kind in institutions of higher education.

The study of modern languages

414. We have one further recommendation to make about courses. Modern languages have an increasingly important role in the conduct of affairs today and there should be much further experiment in this area of study, especially in the application of modern techniques. Many more young people would like to be able to speak and read languages fluently, and such knowledge is becoming essential in a growing number of occupations. Yet the traditional honours course is not designed to meet their more practical needs and interests. A course involving the study of two or three modern languages, with the emphasis on standards in oral fluency, translation and interpretation and combined with the study of the relevant background of the countries concerned, would attract these students and would offer them opportunities to develop at a high level their ability to use the languages in fields where skill in a language needs especially to be supported by knowledge of the background in which the skill is applied. We recommend that such courses should be provided in some of the technological universities, and also in some of the Regional Colleges, to which we now turn.

THE SYSTEM OF FURTHER EDUCATION

Regional Colleges

415. After the Colleges of Advanced Technology the twenty five colleges now designated as Regional Colleges in England and Wales have been singled out by the Ministry of Education as the main centres in which full-time and sandwich courses of first degree level are expected to grow. In 1961/2 the Regional Colleges between them had practically the same number of advanced full-time students as the Colleges of Advanced Technology, and more part-time students. By 1962/3 the Colleges of Advanced Technology, with 10,300 advanced full-time students, had begun to outstrip them, but numbers in the Regional Colleges had increased to 9,900, as Table 42 shows.* Whereas the Colleges of Advanced Technology are the main home of the Diploma in Technology, the Regional Colleges surpass them in the number of students reading for degrees of the University of London. Moreover, the Regional Colleges are not so heavily orientated towards science and technology and they include flourishing departments of business studies, architecture and many other specialisms.

TABLE 42
Advanced students in Regional Colleges: by type of course and method of study
England and Wales 1962/3

England and Wales 1962/3				Number
	Full-time	Part-time		All students
		Day	Evening	
Type of course				
Postgraduate ...	150	50	150	350
First degree ...	3,500	850	650	5,000
Dip. Tech. ...	1,450	—	—	1,450
H.N.C./H.N.D. ...	1,850	6,750	4,400	13,000
Other ...	2,950	3,700	6,500	13,150
All students ...	9,900	11,350	11,700	32,950

Source: *Statistics of Education 1962*, Part 2, Table 15

416. Two thirds of the full-time students in the colleges are engaged on advanced work, and eight colleges have more than 500 advanced full-time students, in addition to their part-time work. There are broad distinctions between the Colleges of Advanced Technology and Regional Colleges: the former have more postgraduate work, and the qualifications of both students and teachers are on average higher, as Appendices Two and Three show. But the line dividing the most developed of the Regional Colleges from Colleges of Advanced Technology is not sharp, and may become even less so under the current plans for their expansion in the next few years.

* The names of the colleges will be found in Appendix Two (A), Part III, together with detailed statistics.

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417. Taking the two groups of colleges as a whole, the most significant difference from our point of view is that the Colleges of Advanced Technology are already national institutions—firms of national repute tend to gather together in one centre the students whom they wish to send on sandwich courses. The Regional Colleges have fewer students taking these courses. Much of their advanced work is of the orthodox full-time pattern, and with a few exceptions their area of recruitment is largely regional.

418. In this sector we hope there will be much experiment. Many colleges will retain a special emphasis on courses of science and technology, but others may wish to develop a different emphasis. Business studies and the practical use of languages, which we dealt with above, offer obvious examples. Other colleges may wish to develop arts and science courses on more traditional lines. We are convinced that there is scope for a wide range of stimulating courses which should prove attractive to students, especially when (as we recommend later in this chapter) many of them lead to first degrees.

419. As for the status of the colleges, we believe that here too there is room for much variety. Some may be best suited by their present system of government. Others may profit from federation with another technical college or with a College of Education, or both. Others again may become constituent parts of universities new or old. Some may follow the Colleges of Advanced Technology and attain university status.*

420. In the case of the Colleges of Advanced Technology, grant direct from the Ministry of Education has been found a useful device in arranging the transition from local authority to university status. Such an arrangement may sometimes also prove helpful in the development of Regional Colleges.

Area Colleges and Colleges of Commerce

421. In the large group of over 160 institutions described as Area Colleges there were in 1962/3 another 9,000 advanced full-time students.† These were far outnumbered by the 63,000 advanced part-time students. Moreover, in these colleges as a whole less than two thirds of the full-time advanced students were studying science and technology. We see here in its full variety the provision for qualifications of all kinds that has been the great feature of British technical education. The colleges are the main providers of courses not only for National Diplomas and National Certificates, but for a host of other qualifications. They include a small group of separate Colleges of Commerce, some of which are now developing full-time and sandwich work in co-operation with business firms. As their advanced work grows, a number of the Area Colleges, including some of the Colleges of Commerce, will be entitled to be considered for designation as Regional Colleges.

422. Yet there are two reservations to be made. The first is that, in the process of encouraging the growth of full-time work at advanced level, the organic connections between the different stages of technical education must not be harmed. The great majority of the students of Area Colleges and of Colleges of Commerce—indeed at the present time of some Regional Colleges

* The possibilities of university status for existing colleges are discussed again in the next chapter.

† Further details will be found in Appendix Two (A), Part III.

also—are taking courses below advanced level and studying part-time. If too many of these colleges were removed from their intimate connection with local industry and commerce there might well be a serious risk that the nation's needs for technicians and skilled manpower generally would be increasingly neglected. The close local relationships that these colleges have done so much to foster must be preserved. Moreover, if the colleges as a whole ceased to be administered by local government there is some risk that the links with school education—which are essential if technical education is to provide an alternative ladder of higher education for boys and girls who are unable to follow, or are unsuited to, a sixth form and university course—will also be weakened. For these reasons, while, in Chapter XV, we recommend important changes in the methods of administration of these colleges, we recommend in Chapter XVII that they should remain under the control of local authorities.

423. Our second reservation arises from the need for the economical use of staff and apparatus. Our survey of students* provided information about the size of classes in further education in 1961/2. The average number of full-time students attending advanced classes of all kinds was 11·6. It ranged from 13·7 in the Colleges of Advanced Technology to ten or less in Area Colleges or the smaller Central Institutions in Scotland. Courses attended by students taking the Diploma in Technology contained on average 13·5 students and art classes 8·4. The main form of teaching (except in art) is by lecture, but even lectures had an average attendance of only 14·4 (16·1 in Colleges of Advanced Technology). These small classes are the result of the wide dispersal of educational facilities. Such dispersal has certain advantages: if it did not exist there would be a widespread denial of opportunity. But it is much less defensible for full-time than for part-time courses, and this offers a powerful case for the selective development of institutions. We do not deprecate undue dispersal out of any desire to limit the opportunities open to the part-time student. But in Chapter XI, in our discussion of the universities, we shall refer to the great advantages of size and concentration: the same arguments are relevant here. The responsible authorities should make their plans well in advance and in close co-operation so that, where it is proposed that Area Colleges should be designated as Regional Colleges, or Regional Colleges as universities, there a suitable concentration should be encouraged; and where this is quite out of the question false hopes should not be allowed to emerge. In all this the Regional Advisory Councils† will have an increasingly responsible part to play.

424. A necessary corollary of this policy is the principle of student transfer, to which we attached importance in Chapter II. If resources are to be husbanded, transfer must become increasingly common, and not only at postgraduate level, when many students should transfer to universities and technological universities. Students who have taken the early stages of technical or professional education in a small centre and are capable

* See Appendix Two (B), Part IV.

† These Councils are described in Chapter IV, paragraph 94, and, in more detail, in Appendix Four, Part I, Section 5.

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of taking an advanced course must be able to take advantage of one of the new range of degree courses we are about to recommend for the Regional Colleges and the larger Area Colleges. The co-operation between the colleges should be such that full credit can be given for work already done. Students who transfer to another college will often have to live away from home: the growing need for residential accommodation, in this and other sectors, is a topic we shall discuss in Chapter XIII. Such students may also need financial assistance and their proper needs must be met.

Academic awards

Present arrangements

425. In Chapter II we established as a guiding principle that equal academic awards should be available for equal performance. Facilities must therefore be provided for those who do work of degree standard to obtain degrees, even if the institutions they attend have no independent power to award them.

426. At present the opportunities open to a student doing work of degree standard outside degree-giving institutions mainly consist of courses for a degree of the University of London. Outside the London area, where some colleges have a special relationship with the University, the degree is the London external degree. Up to now it has played a pivotal part in the history of further education. The system under which any person of any nationality, if possessing stipulated preliminary qualifications, may register as an external student of the University and in due course present himself for an examination of a standard exactly parallel with that taken by internal students was surely one of the notable educational inventions of the nineteenth century. Quite apart from its role in relation to the development of new institutions, it has provided the possibility of academic qualification for many thousands of people who had no opportunity of entering a university. It has provided a means whereby advanced work can be properly examined in institutions not yet of full university status, both at home and abroad. Whatever may be its future, its honourable place in academic history is a matter of common consent.

427. Nevertheless the system lacks flexibility, and has the disadvantage both for teachers and students that the courses of study are prescribed by boards of studies that have no necessary connexion with the institutions in which they have to be pursued. For, conspicuous as are the standards of the London degree and great as are the pains taken to make it of general value, it is impossible for it to suit equally all the different types of environment in which work for it is done. There can be no satisfactory substitute for examinations set by teachers acquainted with the way in which the students to be examined have been taught. No one who has witnessed the uprush of self-respect and vitality that came to the former university colleges with their constitution as self-governing degree-awarding bodies can doubt that, necessary as the connexion with London University may have been, it is not a permanently suitable arrangement for developing institutions.

428. An alternative to this system has already been devised and tested in practice in England and Wales by the National Council for Technological Awards, often referred to as the 'Hives Council' after the name of its first chairman. In contrast to the London degree, the Council's Diploma in Technology is awarded after a four-year sandwich course and is based upon college courses and college examinations; the courses and the examination arrangements (including the appointment of external examiners) have to be approved by the Council through its various boards of studies. Moreover, in approving centres for the Diploma in Technology, the Council has attached great importance not only to the standard of the particular course but to the general level and atmosphere of the work in the whole college. We think this system has worked well in practice and is one of the influences that have brought the work in the Colleges of Advanced Technology to its present high standard.

The need for a new range of degrees

429. With the assumption of degree-granting powers by the Colleges of Advanced Technology, the National Council for Technological Awards will cease to deal with them. But similar functions will be needed on an increasing scale for other colleges; and if some of them develop courses outside the area of science and technology, as we recommended above, the field over which degrees will need to be available may be considerably widened, going, for example, into the fields of business and commerce.

430. Furthermore, whereas the Diploma in Technology is the equivalent of an honours degree, we should also wish to see examinations available at the standard of pass degrees. We have argued the educational advantages of providing opportunities at both levels in our remarks on university courses. The same arguments apply as strongly in further education. If selection for an honours course or a pass course is not made on entry but after a period of common studies lasting a year, some of the frustrations at present experienced by students who now find their initial aim beyond their capacity could be avoided. Conversely, the student who is not ambitious at first, but whose interest and talents develop in the course of his study, may go forward to a more arduous course than he had embarked on. We hope for more positive guidance of students on the part of the colleges than has often existed hitherto. This is not inconsistent with the need to leave opportunity open: initial enrolment should still take place if students have the necessary qualifications. But after a period of study has revealed a student's strength or his limitations, there should be no hesitation in advising him of the level of qualification at which he should aim in the later years of his course.

431. Educational needs here are matched by industrial needs. There has long been a demand for people with qualifications approximating to the level of pass degrees, recognised in the present schemes for National Diplomas and Certificates*. The former are usually awarded after a sandwich course lasting three years, which students enter with one or more passes at the Advanced level of the General Certificate of Education, or with an

* A description of these will be found in Appendix Two (A), Part III.

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Ordinary National Certificate. The new degree courses we propose should be open to suitable students holding the same qualifications, and it is likely that a new range of pass degrees would soon render Higher National Diplomas superfluous: the distinction in concept and level between the two would be too limited. Diploma courses drawing on students of the same attainment but of shorter duration may still be needed. A two-year sandwich course leading to a new kind of diploma may well prove desirable, as employers increasingly see the case for full-time study for many of those students who at present take the part-time Higher National Certificate. However this may be, at present some 50,000 students are studying for the Higher National Certificate, and in view of its popularity and the continuing high demand for part-time courses at this level, it is likely that, even if the Higher National Diploma disappears, present arrangements for the Higher National Certificate will be required for many years.

432. Thus far we have considered only the case for a range of awards at first degree level. The need for some higher qualification appropriate to the special needs of the colleges and of industry has in recent years been recognised through the arrangements for the award of Membership of the College of Technologists, given by the National Council. So far few candidates have presented themselves; the special requirements for registration are arduous. But this does not disprove the case that more opportunity to obtain a higher qualification is required than is provided by the facilities for higher degrees offered by the University of London. Yet it does not follow automatically that a national system of higher degrees is required to complement the national system of first degrees. We have said that we look for a new freedom for students to transfer from one institution to another and it is at the postgraduate stage particularly, where the number of centres must remain small if distinction is to be achieved, that opportunities for transfer must be greatly increased. Accordingly, we think that students whose performance in a first degree course at a Regional or an Area College entitles them to pursue their studies to a higher stage should normally transfer to what are now Colleges of Advanced Technology or to universities. The range of opportunities which this offers will not only cover work of the kind associated with a higher degree of the traditional kind: we expect some at least of the Colleges of Advanced Technology to experiment in the field of higher studies on novel lines such as those pursued by the National Council. The setting up of the new system of first degrees will be a formidable task for the body whose creation we are now to propose: this body must determine for itself whether there is a need for a system of higher degrees as well. But if such a system is established, we recommend that it should be confined to colleges that are developing a large volume of postgraduate work, as part of the process of development we described in paragraph 419.

A Council for National Academic Awards

433. We recommend that the present Council should be replaced by a Council for National Academic Awards, covering the whole of Great Britain. In Chapter XVII we make recommendations on the method of its appointment. We think that it would contribute to the standing of the

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Council and of its awards if it could be established under royal charter. It would differ from the present Council not only in awarding degrees at pass and at honours level and in covering areas of study outside the field of science and technology: it should also differ somewhat in its composition. The strong industrial representation is valuable, particularly when it is possible to secure as members those who are distinguished in professional as well as in managerial capacities. But greater representation will be needed of the Regional and Area Colleges, for whose benefit the Council will in future operate. At the same time we think that autonomous institutions (the Colleges of Advanced Technology as well as the universities) can continue to give important assistance in establishing standards and generally helping the colleges in their academic progress, and we recommend that they should be collectively responsible for nominating a number of members to the Council. Their academic advice at national level will of course continue to be supplemented in the regions through the Regional Academic Boards that are associated with the Regional Advisory Councils: at this level too we hope to see Colleges of Advanced Technology and universities play a leading role in discussion of academic policy.

434. Some colleges may well continue to prefer the London external degree to the degrees of the National Council. We see every reason why such an association should continue where it is desired. Indeed there are at present some seventy five colleges (other than Colleges of Advanced Technology) that offer courses leading to London degrees. Although the Council for National Academic Awards, approving courses for pass as well as for honours degrees, may well choose to range wider than the present Council has done, it would be departing from principles we have laid down to approve as a degree centre a college with only a handful of students at this level. The Council itself will determine whether, in colleges whose full-time work is sufficient for its purposes, part-time students as well as full-time students should be eligible for a degree, but we should not wish colleges to be approved by the Council if there were no nucleus of full-time work. In these circumstances, and particularly to meet the needs of the part-time student, the London external degree will have a continuing role.

Control of the power to give degrees

435. In this chapter, as in the last, we have proposed arrangements whereby degrees will be more widely available than ever before in this country. We have recommended that teachers should be given a share in devising courses suitable to the needs of their own institutions. But our recommendations will at the same time ensure that the standard traditionally attached to the term 'degree' in this country will be fully maintained. This is in our view essential, for the maintenance of standards was one of our cardinal principles in Chapter II. We therefore wish to call attention to the anomalous state of the present law, under which, as is shown in Appendix Four*, there is at present in Great Britain virtually nothing to restrain unauthorised associations or persons who purport to award degrees. Unless fraud is to be proved, a

* See Part I, Section 1

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'degree' can be conferred after studies of trivial content, or indeed after no study at all. It is true that such degrees have had limited appeal to residents in this island, but they have sometimes, through ignorance, proved attractive to people abroad, and have caused embarrassment to those concerned with the repute of British education. Action is difficult, not only against those who confer worthless degrees, but also against those who falsely lay claim to genuine qualifications. We recommend legislation to remedy both deficiencies. In future the power to give degrees should be vested only in authorised bodies or persons and abuses should be capable of speedy and effective remedy.

Colleges and Schools of Art

436. In England and Wales art is taught not only in numerous Schools of Art but also in departments of some Regional and many Area Colleges. At the apex of the system are the university schools and the Royal College of Art. We have considered how far our recommendations for other colleges should apply in this field. Art education in England and Wales outside the universities has recently been the subject of a comprehensive survey by the National Advisory Council on Art Education, and a new award (the Diploma in Art and Design) is being established this year to meet the needs of advanced students. This award is under the direction of the National Council for Diplomas in Art and Design, under the chairmanship of Sir John Summerson: the functions of the Council are similar to those of the National Council for Technological Awards, and it has determined to set high standards. It will be apparent from the wide dispersal of advanced courses at present and the small size of classes mentioned in paragraph 423 that the number of centres offering the new diploma must be limited. Although we are aware that there will be considerable difficulties in the transitional period, we see in these measures an important opportunity for encouraging the development of Schools of Art which may rival the Regional Colleges in the scope of their full-time work, and the largest schools must clearly be administered by local authorities in the same manner as we advocate in Chapter XV for Regional and Area Colleges. The Royal College of Art, which draws its students from all over the country and has for long been pre-eminent in certain fields, has a clear claim to be treated administratively in the same way as the Colleges of Advanced Technology, and we recommend that, like them, it should be financed through the future machinery for grants to universities.

437. In Scotland the four Central Institutions that provide advanced education in art have achieved considerable distinction. As with other Central Institutions, we envisage that they need not all share the same path of development, and the alternatives mentioned in paragraphs 399-401 will need to be explored.

438. The question remains whether degrees should be made available for students taking courses in art. While degrees are not appropriate to mark achievement in executive subjects, there are aspects of art, as of music, for which degrees are quite appropriately given. Any institution that becomes

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autonomous should of itself be able to consider whether to give degrees when the courses are of an appropriate academic nature. But the main stream of art education provided within the public system of further education should be well served by the Diploma in Art and Design and the Scottish diplomas.

Other institutions

The College of Aeronautics

439. In general we have avoided recommendations for particular institutions, but in some cases this is not practicable. Just as the Royal College of Art occupies a special place in art education, so we must refer to the College of Aeronautics at Cranfield. Nearly all its courses are designed for those who have already obtained first degrees or diplomas and there is no doubt about the standard of its work. Higher degrees should therefore be available in future for its students. Two questions arise : what should be the status of the College in future, and should it have the power to award its own degrees?

440. At present the College is administered by a distinguished governing body, which receives grant from the Ministry of Education. We recommend that in future it should be brought within the ambit of the university grants system. The body that will administer university grants will have to consider whether the College should be substantially enlarged and perhaps play a more ambitious role in the total pattern of higher education, or whether it should remain at about its present size and, if so, whether it should still be completely independent or whether it should forge a link with a university.

441. This is connected with the answer to our second question. We are not happy that a relatively small college of this kind should have power to award its own degrees. We recommend, therefore, that if the College remains at about its present size and wishes its students to be eligible for higher degrees it should be urged to form an appropriate association with a university.

National Colleges

442. On the future of the six National Colleges* no simple pronouncement is possible. The level of their work differs and not all of it falls within our definition of higher education. It is important that degrees should be available for those students who are taking courses of degree level. Three of the colleges stand on their own ; the others, while administered as independent institutions, are closely associated with adjacent technical colleges. We recommend that the future of each of these colleges should be considered on its merits in the light of the general pattern of machinery of government that we propose in Chapter XVII.

The Agricultural Colleges

443. Finally, we come to the eight Agricultural Colleges—five in England and Wales and three in Scotland. At present all the colleges provide two-year courses with a minimum entry standard at the Ordinary level of the school

* These colleges are listed in the footnote to Chapter IV, paragraph 92. The Camborne School of Metalliferous Mining is another institution in many respects comparable to a National College.

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leaving examinations. South of the Border the five colleges are independently administered, four of them grant-aided from public funds. This year it was announced that departmental responsibility was to be transferred in April, 1964, from the Ministry of Agriculture, Fisheries and Food to the Ministry of Education. The colleges may in due course raise their entry standards to the Advanced level in the General Certificate of Education and may lengthen their courses to three years; and eventually courses of degree level may be practicable. Arrangements will then be needed so that suitable students may earn degrees. In Scotland the three colleges, as we have seen in paragraph 398, form part of the group of Central Institutions recognised by the Secretary of State. Each college already has, or is developing, a very close affiliation with the adjoining university and we would hope that the principles set out in paragraphs 399-401 will continue to be followed in the future.

CONCLUSION

444. In this chapter we have recommended the development of five Special Institutions for Scientific and Technological Education and Research. We envisage a new role for the Colleges of Advanced Technology as technological universities, conferring their own degrees. In other colleges a new system for degrees should be established, covering business studies, languages and other subjects as well as science and technology. We consider that among what are now Regional Colleges there will be found scope for some further elevation of institutions to the status of universities. These and our other recommendations in this chapter should together give new impetus to the development of vocational higher education in Great Britain and, in particular, should remedy weaknesses in the nature and organisation of technological education and research.

CHAPTER XI

The future pattern of higher education

445. In the last three chapters we have considered how existing courses and existing institutions might adapt themselves to the world of the future. We have now to harmonise our recommendations and, taking account of the ways in which present types of institution are likely to develop, to consider what role they should play in the future pattern. But it is necessary first to consider whether existing types of institution will collectively be able to meet all the needs both of students and of the country. A number of witnesses have suggested that some of the additional places needed should be provided in institutions of a new type.

THE POSSIBILITY OF NEW TYPES OF INSTITUTION

447. We have given serious attention to these proposals and are in of new institutions, sometimes called 'university colleges', which would be rather less than universities but rather more than technical colleges or training colleges as they are today. Some witnesses invoked the example of the American liberal arts college; others appeared to be contemplating colleges solely concerned with professional and vocational studies. But the characteristic of all these proposals was that the colleges would have no postgraduate students. Indeed it was sometimes suggested that their undergraduate work should be confined to courses of pass degree standard.

447. We have given serious attention to these proposals and are in sympathy with many of the educational objectives they are designed to achieve. We fully accept the need for experiment in the planning of courses, whether these are courses of general education or have a specific vocational aim. But the question is whether new kinds of institution should be founded specifically to carry out such experiments. We reject this proposal for the following reasons.

448. Our fundamental objection is that these proposals would create too static a type of institution. We are in favour of developments in Colleges of Education and Regional Colleges that may make some of them virtually equivalent to what is proposed. But it is one thing to reach such a position as a result of progress, and quite another to be created as an institution that is not to be allowed to develop. We do not suggest that all colleges should, in the fulness of time, be universities: in Chapter II we saw a continuing need for variety and recognised that complete uniformity of function and of achievement was impracticable. But we think it important for the general health of the system that all institutions of higher education should have some opportunity for development.

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449. Moreover, we think it better in general to encourage innovations in established institutions than to attempt to begin, with restricted aspirations, on a completely new basis. Liberal arts colleges founded specifically to deal with work of limited range would have difficulty in establishing a reputation. They would not be building on the long experience gained in further education and in the education of teachers, nor would they have the attraction for staff and students of a university proper.

450. Finally, it is difficult to quantify the hypothetical group of young people who are said to want courses of a general character but would prefer such courses to be available outside a university setting. It may well be that educational experiments in what are now Training Colleges or Regional and Area Colleges will inspire a growing demand for this type of course. But at present we have grave doubts whether colleges that are neither universities nor colleges with a professional orientation would attract students. It is impossible to plan provision for a future need that cannot be quantified. As and when the need arises, it can be met both flexibly and economically by experiments in existing types of institution.

451. A different type of new institution was proposed by other witnesses, who advocated the creation of separate junior or preparatory colleges to undertake the later stages of sixth form work and the first year of university work. They argued that many schools were inadequately staffed to prepare young people going into the universities to study science or technology. As a result, students lacked the basic equipment for success in a university course, and this was a major cause of wastage. They also argued that the level of the work in these subjects in the first year at a university did not require a teacher who is also engaged in research, and that to remedy deficiencies of schooling was not an appropriate task for a university teacher.

452. These arguments may at first sight seem attractive, in so far as they claim an analogy with the junior colleges—some of which we much admired—in the United States*. But the American junior college fits into a quite different pattern of secondary and higher education. In this country to exclude sixth form work from the schools would deprive them of a source of inspiration at all levels. We are concerned with the effect that such a scheme would have on higher education. We reject the assertion that first year work is inappropriate for a university teacher. It is in the first year that foundations are laid and the young are introduced to the world of mature thought. A year or two years in a junior college would be no substitute for the first university year in this country. Moreover, if this change were made, a university education would for some people last only two years, and this is not long enough for the development of a coherent course. Finally, we do not think the present problems of co-ordination between schools and higher education would in any way be eased by such a scheme.

* See Chapter V, paragraph 108.

THE DEVELOPMENT OF EXISTING INSTITUTIONS

453. We therefore recommend that the needs of the future should be met by developing present types of institution. Our recommendations in previous chapters will have made it clear that in doing so we shall not be attempting to perpetuate the irrational distinctions and the rigid barriers between institutions that are criticised in Chapter II. Quite apart from our specific proposals for giving university status to a number of colleges as they develop, the growth of general work and the rise in standards consequent upon the wider availability of degrees in Colleges of Education and in further education will tend to eliminate such distinctions.

454. Nevertheless, as we argued in Chapter II, distinctions that derive from different functions will still exist. The range of functions that a university is called on to perform must distinguish it from other institutions of higher education, as does its independence of external control. Our concern in the paragraphs that follow is therefore to determine on what scale each kind of institution should contribute to the total provision of higher education. There are a number of possible variants here; each would produce a different pattern of education, which might well have a different effect on the national economy. To determine the relative size of these contributions now becomes one of our central tasks and we must begin by setting out the principles on which our conclusions are based.

Principles of development

455. What are the criteria by which the pattern of the future must be judged? First, a system of institutions is required that is capable of expansion to meet the need for places described in Chapter VI. In that chapter we gave reasons why, in our judgment, the assumptions made about the demand from home students were more likely to lead to an under-estimate than to an over-estimate of demand, and possible fluctuations in the demand from overseas could make a relatively small difference to the grand total. To provide the number of places that our projections envisage year by year must therefore be described as a minimum aim. Throughout the period up to 1980 the need is for expansion. If the places that institutions of higher education are enabled to provide in a particular year exceed in some small degree the need as we have forecast it, this result should be welcomed. But if they fall short in a particular year, this will merely accumulate the demand in the period that follows.

456. Our conclusion, set out in Table 30 in Chapter VI, was that the total need for full-time places will be 344,000 in 1970/1 and 558,000 in 1980/1. In 1962/3 there were only 216,000 students. Between 1970 and 1980 the number of additional places needed will therefore be as large as the whole provision in higher education at the present day. Even in the next ten years, up to 1973/4, nearly 180,000 more places will be needed. This is the measure of the task.

457. In Chapter VI we pointed out that we did not regard the estimated demand for places in 1980/1 as the appropriate guide for immediate planning. This long-term estimate is inherently more uncertain than our

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estimate for 1973/4. Moreover, for 1980/1 we can give only the most general picture of national needs. But the broad orders of magnitude for 1980/1 are such that any plan aiming at meeting the needs of the next ten years will prove inadequate if it ignores the longer term. For this reason we believe that our long-term estimates provide the best background against which to judge the desirable pattern: we shall therefore in this chapter consider first the situation in 1980/1. We recommend that in future years detailed planning should be made for a period extending ten years ahead, but that those responsible for policy should also be furnished with a regular appraisal of needs over the decade beyond that for which they are currently planning.

458. Our second criterion in deciding the future pattern is that it must ease the pressure on the schools, which is the product of the present competition for entry to universities. This was a central theme of Chapter VII, and we attach great importance to achieving this objective as soon as possible.

459. Thirdly, mere numbers will not be enough. The system must also provide varied education of high quality, both to satisfy national needs, so far as these can be estimated, and to fit young people to take their place in an increasingly complex social and economic structure. The particular pattern of institutions we recommend will largely determine how well these needs are met.

460. Finally, the pattern must provide for organic growth not only in total but for individual institutions. It must neither force their development at an intolerable pace nor leave them undisturbed when foresight would indicate the need for action. This principle has had much influence on our recommendations. At certain times and in certain sectors we shall find that the desirable rate of growth has to be curtailed because of problems of organisation, staffing and accommodation. In other sectors we shall propose that steps be taken in the next few years which, though not immediately necessary, will secure that the system will not experience in the later 1970's the strain it will undergo in the next four years.

THE LONG-TERM PATTERN

The role of the universities

461. Our first task has been to consider what proportion of the places needed in 1980/1 should be provided in universities, a term which henceforth in this Report we shall use to include Colleges of Advanced Technology and other institutions that in future are given the status of universities or technological universities.

462. Arguments have been advanced on various grounds against too great an expansion at this level. It is said that it may be detrimental to the universities, or that it may fail to meet the full range of national needs for educated manpower. Provided that there is a selective development of centres for postgraduate work, we have no fear that the advancement of knowledge will suffer by too wide a dispersion of talent. And, while it is

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true that a distribution of university students in courses and faculties on present lines would not meet national needs, we saw in Chapter VIII that there was increasing emphasis on the provision of broader courses for the first degree: it is clear that the universities are capable and desirous of change. Moreover, the giving of university status to the Colleges of Advanced Technology and other institutions will provide a means of ensuring that other educational experiments that have been found to be valuable in meeting national needs can be preserved and developed in a university setting.

463. It is sometimes said that, if other institutions become more attractive to students because of the wider availability of degrees, the pressure for entry to universities as a group will be eased. On this argument, the undesirable effects of the present competition for places might be removed without making provision in universities for a larger proportion of the growing numbers qualified for entry. We acknowledge that some of the factors responsible for present pressure will have lesser force in future. Many students at present feel that merely to be accepted by a university confers a public mark of merit far more conspicuous than that obtained by entering other institutions, and we hope and expect that our proposals in Chapters IX and X will lessen this sharp contrast in esteem. Moreover, as we shall see later in this chapter, there are serious practical difficulties in securing an early easement of the degree of competition for university entry. But it would be wrong to allow considerations such as these to affect our judgment of what is ultimately desirable and right.

464. We fully recognise that, because of the universities' concern with research and the advancement of learning, expansion of education in this sector leads to greater expenditure than expansion in similar studies outside the universities.* But the over-riding consideration that, in our view, outweighs this and other arguments is the undoubted gain to young people of being brought into contact with leaders of thought and of knowing themselves to be members of an institution in which the highest standards of intellectual excellence are honoured. Every university teacher is aware that the atmosphere of the university can transform the whole approach to learning of students who, when admitted, seemed only doubtfully fitted for university work. Excellence at the highest levels in an institution is a vitalising influence at all levels. A large university population within the total provision for higher education is therefore something we conceive to be in the nation's interest, if the talents and abilities of our young people are to be called out.

465. We therefore recommend that enough places should be provided to allow the proportion of qualified school leavers† who enter universities to be increased as soon as practicable. This will mean increasing the size of the university contribution to the total numbers in higher education.

* Cost figures are given in Chapter XIV, and in greater detail in Appendix Four, Part IV, Section 3.

† This term was defined in Chapter VI, paragraph 153. Briefly, it refers to those holding the qualifications appropriate for entry to the various fields of higher education, and includes those obtaining such qualifications after leaving school.

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We discuss below the date on which such an increase can begin: there are serious difficulties preventing it in the near future. But by 1980/1 we recommend that 346,000 out of the total of 558,000 places should have been provided in universities.* The proportion of qualified school leavers entering the universities in 1980/1 will then be roughly the same as in the mid-1950's, when the competition for entry had not yet produced its undesirable effects. This means that, of the students entering full-time higher education in 1980/1, the proportion going to universities will be 60 per cent., as against 55 per cent. at present.† The recommendation has, of course, a spurious air of precision. The amount by which competition for entry needs to be eased to achieve our objectives cannot be accurately computed. But the total of about 350,000 places is our best estimate of what will be required, taking account of the desirable developments in other sectors of higher education, which we shall discuss later.

The size of universities

466. What will this recommendation imply in terms of new universities, additional to the seven universities recently founded and the Colleges of Advanced Technology, which are to acquire university status? Before we can answer this question we must discuss what developments are desirable and practicable in existing universities.

467. We think that the large university department, the large faculty and the large institution have considerable advantages, both educational and economic. A large department makes possible research and teaching in a number of branches of the subject concerned. In most subjects the small department is now severely handicapped in postgraduate work. Table 43 shows the average number of staff in the departments of the various faculties in 1961/2. Even if we allow for the fact that departments have different meanings in different universities, these numbers are very small. Most departments have only one professor, and a single professor—even if supported by a reader and junior staff—cannot attempt to cover the whole of the appropriate field. Some part at least of the sense of frustration sometimes encountered among the staff of the smaller universities may well be attributable to this.

468. On the grounds of economy it is undoubtedly better to provide very expensive equipment in the pure and applied sciences for large departments and faculties than to spread it amongst a number of smaller departments.

* For a detailed discussion of the recommended plan of expansion in each sector of higher education see Appendix One, Part IV, Sections 6-9.

† For reasons mentioned in paragraph 491 and explained more fully in Part IV of Appendix One, the precise criterion adopted has not been the proportion of those entering higher education who go to universities, but rather the proportion of qualified school leavers who enter universities, irrespective of the numbers entering other sectors of higher education. To be specific, in 1980/1 the proportion of qualified school leavers entering universities (defined as in paragraph 461) is taken to be 17 per cent. higher than the proportion in 1961/2 entering the universities, Colleges of Advanced Technology, the Heriot Watt College and the Scottish College of Commerce. The increase will be 10 per cent. in Scotland and nearly 20 per cent. in England and Wales. Competition for entry to universities in Scotland is less acute than in England and Wales, and it therefore seems reasonable to provide for a greater easement in England and Wales.

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TABLE 43
Average number of academic staff per university department: by faculty
Great Britain 1961/2

										Number
Faculty										
Humanities ...	...	...	...	...	...	...	...	...	...	7
Social studies ...	...	...	...	...	...	...	...	...	...	7
Science ...	...	...	...	...	...	...	...	...	...	10
Applied science ...	...	...	...	...	...	...	...	...	...	11
Medical subjects ...	...	...	...	...	...	...	...	...	...	5
All faculties ...	...	...	...	...	...	...	...	...	...	7

Source: Survey of university teachers. (See Appendix Three, Part I, Table 14)

Note: Appendix Three, Part I, Section 11 shows how teaching arrangements are related to the size of faculty in which teachers work.

There are equally cogent reasons for economy on the side of the humanities. A library adequate to scholarly research is as essential to the efficient running of a university as an adequate range of computers, and, however far the technique of micro-filming may be carried, it is uneconomical to provide such libraries in a large number of small institutions.

469. This leads naturally to the question: what is the optimal size of an institution? This must be determined by its educational function, its organisation and the availability of a suitable site. First, educational function: by this we mean both the area the institution serves and what it teaches. Clearly a university serving national needs and drawing students from all over the country has *prima facie* a need to be bigger than another institution that is concentrating on meeting the needs of an area. But the other aspect of educational function must, in our view, be set against this. If all the students in an institution are in one or two closely connected faculties, or if they are all engaged on an identical course of education and training for a particular end, there is an upper limit beyond which the advantages that might accrue from further growth are likely to be offset by other factors; both teachers and students will increasingly come to miss the stimulation of colleagues with different interests. We think therefore that 2,000 students or thereabouts is probably the upper limit for a single-purpose institution, and about 4,000–5,000 for an institution like the Special Institutions for Scientific and Technological Education and Research or for technological universities, whose main preoccupations will be in the faculties of science and technology.*

470. But these same considerations lead us to the conclusion that the tradition of small multi-faculty universities should be re-examined. In other countries, even where staffing is as generous as it is here, much larger universities, with 30,000 or more students, are not uncommon. At present British universities range from 1,000 to 9,000 students, excluding the federation of London University which includes a total of 23,000 students in colleges of quite separate location, tradition and, in some cases, function. We would not favour non-federal universities of 30,000 students. But the present sizes are very much less than this.†

* See Chapter X, paragraphs 384 and 397.

† Chapter IV gave figures on the present size of institutions, and more information will be found in Appendix Two (A), Part I.

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471. We recommend that many of the multi-faculty universities of this country should expand to accommodate 8,000 or even 10,000 students. We fully endorse the view held by many teachers that a university changes its ethos if it becomes so large that both teachers and students feel lost in it. But this is not a necessary consequence of expansion beyond the size which many universities have thought appropriate for themselves in the past.

472. Turning to organisation, we think that any institution is under an obligation so to organise itself that neither teachers nor students feel themselves mere parts of an impersonal machine. There is a range of problems here that has not yet been fully investigated. The collegiate system of Oxford and Cambridge, which provides not only residence but a focus of loyalty within the larger community, is sometimes taken to be the only solution. It is sometimes alleged that, unless other universities incur the prohibitive expense and legal complications of repeating all the features of this system, their organisational problems will often become well-nigh insuperable if they expand greatly beyond their present numbers. But we think there are many less drastic ways of solving these problems. We discuss some of them in Chapters XIII and XV, and experiments already taking place in existing universities point the way to other possible forms of organisation.

473. The third factor that must determine the optimal size of an institution is the availability of a suitable site for its present and foreseeable future needs. A number of the universities in large cities have been, and some still are, gravely handicapped here. We would urge not only the institutions but also local authorities to set their sights high. To accommodate a developing society of fifty million people in this country a bold policy of replanning is essential: we would urge local authorities to recognise that universities must be given room to expand as and when they need it. They can only formulate sensible plans for their expansion up to 1980 if they know that the sites they need will be forthcoming. A ten-year period is not long enough for physical planning: the end must, so far as possible, be seen from the outset.

474. We have taken advice on the potential capacity of existing universities and Colleges of Advanced Technology. On the basis of our conclusions about the optimal size of different kinds of institution we were advised that, by 1980/1, the capacity of existing and approved universities, including nearly 45,000 places in the Colleges of Advanced Technology and their Scottish counterparts,* is unlikely to exceed 295,000 students. Apart from London, this would imply that six universities had 10,000 or more students and seven more had at least 7,000. The new universities would all have reached a total of at least 5,000.

New universities

475. These are large totals and they assume that universities are able and willing to expand on this scale. Whether they will in fact be willing to make so massive an effort can only be discovered by inquiries addressed to the individual foundations. But there are good grounds for regarding the estimated capacity of nearly 300,000 students as the maximum compatible with our conclusions in paragraphs 469-473. To meet our recommendation for a total of about 350,000 university places in 1980/1

* See Chapter X (footnote to paragraph 398).

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there is thus a need for some 50,000 places over and above what can be provided from existing universities.

476. We therefore recommend the foundation of six new universities in addition to those now in process of formation. One of them will be a Special Institution for Scientific and Technological Education and Research.* The steps needed to establish these universities should be begun at once. At present it takes four or five years for a new university to reach the stage where permanent buildings are available even for a few hundred students, and this after local interest has already been organised and the site chosen. It may be that, as experience accumulates, this process can be accelerated, but even so it is clear that initiative is needed within the next few years. We think it improbable that any university founded within the next few years could accommodate more than 5,000 students by 1980, and we are convinced that between them they are unlikely to provide more than about 30,000 places at that date.

477. The balance of some 20,000 places should be met by giving university status, either by separate charter or by combination with an existing institution, to some of the present Regional Colleges, Central Institutions and Colleges of Education. The number of colleges to be given university status and the rate at which it should be given must be judged primarily on the record of achievement of individual institutions, but it is a reasonable hope that some ten of these colleges will have reached university status by the end of the period. As with the Colleges of Advanced Technology, university status need not be delayed until the selected colleges have reached the optimal size for university institutions. But the steps needed to encourage their development will need to be taken in the next few years. Like the Colleges of Advanced Technology, they will provide a distinctive contribution to university education, to be set alongside the novel experiments in the content and organisation of undergraduate courses that we confidently expect from the new foundations.

University provision in Scotland

478. At least one, and perhaps two, of the new university foundations should be in Scotland, where the capacity of existing universities and institutions that will gain university status† is unlikely to exceed 40,000 places. At present some 4 per cent. of the students from England and Wales who enter universities go to Scottish universities. If this proportion remained unchanged, the demand in Scotland in 1980/1 would be one of nearly 55,000 places, revealing a gap of nearly 15,000. Even if the number of students from England and Wales in Scottish universities fails to grow at all beyond the number forecast for 1965, the gap will still amount to 9,000 places. Some part of this may be met by giving university status to further institutions, but even if this occurs, the case for one new university is incontrovertible.

* See Chapter X, paragraph 386.

† These estimates include the capacity of the Heriot Watt College and of the Scottish College of Commerce: our detailed recommendations for the future of Central Institutions are given in Chapter X, paragraphs 399 and 400.

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Needs after 1980

479. As we said earlier, the total of about 350,000 places that we recommend for university provision in 1980/1 is in the nature of things a somewhat arbitrary figure. We should not wish it to limit initiative either in founding new universities or in giving university status to existing colleges. Such tentative estimates as can be made of the need for university places after 1980/1 reinforce this view. Even if there is no further increase after 1980/1 in the proportion of qualified school leavers who enter universities, the number of university places needed would have to rise from 350,000 in 1980/1 to perhaps 430,000 in 1985/6. Clearly the risk of providing too many universities is small.

Colleges of Education

480. In Chapter IX we summarised the long-term role that we envisage for Colleges of Education. We must now relate this to the needs of the schools for teachers and to the part these colleges must play in supplying them.*

481. In England and Wales present plans aim at increasing the total number of students in the general and specialist colleges to 80,000 by 1970. This entails an entry of some 27,500 students by 1968. But it seems clear on present estimates that even this major expansion will be inadequate to provide the schools with sufficient teachers by 1980 to eliminate classes above the present statutory maxima of forty in primary schools and thirty in secondary schools. It is of course reasonable to expect that, with the expansion of the universities, there will be a large increase in the number of university graduates who take up school teaching. But even if there were a rapid rise in the proportion, as well as the number, of graduates who enter teaching, these aims of policy would still be beyond reach. Moreover, the greatest shortage of teachers will continue to be in primary schools, and university graduates are not necessarily the most suitable teachers of very young children. It is therefore clear that further expansion of the Colleges of Education is needed.

482. We should have liked to propose an increase in the number of students entering the colleges after 1968 sufficient to eliminate oversized classes well before 1980, and at the same time to provide the possibility for further educational reforms in primary and secondary education. But we think that the rate of growth needed to achieve every one of these ends is beyond the capacity of the colleges and of the system, especially if, as we think essential, some allowance is made for the development of four-year degree courses for suitable students. From the schools' point of view, however, the sooner expansion takes place the better, and we therefore propose for the period up to 1974 the most rapid expansion of the number of students entering that seems practicable. On our proposals, the numbers entering Colleges of Education in England and Wales will rise to 40,000 at that date. After 1974 we propose no further rise in entry. This plan will

* The complex problem of calculating the future need for teachers is treated in Appendix One, Part IV, Section 6. Estimates are given of future needs and compared with the supply that may be expected to result from our recommendations.

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produce 111,000 students by 1973/4 in the colleges in England and Wales and 131,000 students in the middle and later years of the decade. Even with these plans, and even if we acknowledge the possibility of a rise in the proportion of graduates who become teachers, it seems that there will still in 1975 be 15,000 teachers less than the number needed to eliminate classes above the statutory maxima. But by 1980 there should be enough teachers to ensure the elimination of all oversized classes, and provide some margin for other reforms.

483. In Scotland the schools find themselves in a different situation: there is indeed a great shortage of teachers but, as we show in Appendix One, the staffing needs of the next fifteen years are not so acute as in England and Wales. We do not therefore assume a sharp increase in the capacity of Scottish Colleges of Education, followed by a period in which numbers remain stable. The expansion we propose for Scottish Colleges of Education would result in 15,000 students in 1980/1, making a total of 146,000 students in Great Britain as a whole. The situation in Scottish schools in 1980/1 should be at least as favourable as in England and Wales.

484. It may well be objected that our aims for the Colleges of Education are too modest. For example, it might be urged that we should recommend an expansion big enough to guarantee, well before 1980, a sufficient supply of teachers for the elimination of all oversized classes and the raising of the minimum school leaving age to sixteen. It might also be said that forecasts of the need for teachers in the schools are subject to frequent change, when—as at present—the birthrate is rising, the ‘wastage’ of women teachers is growing, and the rate of return of older married women is difficult to assess. Not least the colleges have suffered from too sudden demands to adjust the balance of their courses to match new forecasts of the need for teachers in different kinds of school. The larger the numbers in the colleges, the better opportunity they will have to meet such difficulties and develop as institutions of higher education. Yet this has to be reconciled with the fact that the proper staffing of the schools depends on the colleges, and with the feasible limits of expansion in any given period.

485. Even if the number of places the colleges provide is held constant at about 145,000, then, in the years after 1980, current forecasts suggest there will be scope for large educational reforms in the schools. Moreover, it is impossible to foresee the extent to which university graduates will wish to take up teaching in fifteen or twenty years time, and there may be an even bigger increase than present forecasts allow in the proportion who do so: much will depend on the extent to which university courses of the future provide graduates acceptable to the schools. Finally, and most important, the estimate of some 145,000 places does not include the places in colleges that will have been given university status. When a college changes its status in this way the range of courses is likely to widen, and there is a presumption that those who graduate from it will be less disposed to regard school teaching as the only career they should enter. Our estimate of places presupposes that places ‘lost’ in this way will be made good in other colleges. Plans for Colleges of Education themselves should also increasingly provide for students who intend to take up careers other than teaching, and after 1980 such numbers should be substantial.

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This widening of scope we expect to march hand in hand with the elevation to university status of further colleges in the period after 1980.

Further education

486. When we assessed the provision to be made for advanced courses in further education we had, in the nature of things, no guidance on the demand for their products of the kind we have just discussed in connexion with the Colleges of Education. We have borne in mind the rapid expansion of student numbers likely to result from the educational developments we recommend in Chapter X. But at the same time there are fields of study, such as art, where the number of students is unlikely to show such a rapid increase. We have also taken account of the fact that one in seven of the full-time students in 1961/2 had applied for entry to university and possessed the minimum entrance qualifications.* If there is some increase by 1980 in the proportion of places at university level, and particularly if the universities of that time include the Colleges of Advanced Technology and other institutions that gain university status, the demand in colleges of further education will be lessened. In the event we have assumed that in England and Wales the entry to advanced full-time courses will rise two thirds as fast as the output of qualified school leavers.† The number of places needed in Great Britain will on this basis rise from its present 31,000 to some 65,000 in 1980/1. This may appear a modest increase in comparison with that in universities. But here, as with Colleges of Education, it is important to remember that the estimate does not include places in colleges that have achieved university status. To the extent that this happens, the projection presupposes that the places 'lost' to further education will be made good by developments in the remaining colleges.

487. Moreover, the projection of demand for advanced part-time courses included in Appendix One (Part IV, Section 9) suggests that numbers will grow from 110,000 in 1962/3 to about 200,000 during the 1970's. The task of providing for the expansion of advanced part-time education will fall on the Regional and Area Colleges and their Scottish counterparts in addition to the full-time courses they develop. If seven part-time students are regarded as equivalent to a single full-time student in terms of the load they impose on accommodation and staff, the expansion of part-time education will require provision equal to that for some 15,000 additional full-time students.‡

Size of Colleges of Education and of Regional and Area Colleges: new foundations

488. Our recommendations on the future size of Colleges of Education and of Regional and Area Colleges are in Chapters IX and X. We envisage

* This figure derives from the student survey and relates to 1961/2; it excludes Colleges of Advanced Technology. (See Appendix One, Part IV, paragraph 100).

† In Scotland, entrants to full-time higher education are assumed to be divided between the different sectors in the ratios found in 1961. The basis of the assumptions, for England and Wales and Scotland, is given in Appendix One, Part IV, Section 6.

‡ It is assumed elsewhere that four part-time day students and ten evening students are equivalent to one full-time student. It is not possible to estimate the proportions of day and evening students in the future, and the factor of seven quoted here for the combined categories is merely a rough approximation.

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that many of the former will grow to exceed 1,000 places and some, particularly those that are widening the scope of their activities and preparing for university status, will grow to 2,000 places or even more. The larger Regional Colleges we expect to have at least 2,000 full-time advanced students, quite apart from part-time work and, in most cases, some work below advanced level.

489. With this enlargement of existing institutions the need for new foundations will not be great. But more Colleges of Education may need to be established in the next few years in large centres of population, particularly if the aim is to attract, as day students, a number of the older entrants that the teaching profession will need in the approaching crisis. And in new towns at any rate further centres of advanced technical education will be needed to serve local needs. When new foundations are contemplated we would recommend experiments with institutions that bridge the traditional gap between colleges for the education of teachers and institutions of further education which prepare their students for other professions.

THE NEXT TEN YEARS

490. As we have already suggested, the speed at which our aims for 1980 should be approached is as important as the aims themselves. We have referred to the need for a very rapid expansion of Colleges of Education in England and Wales in the early 1970's, and given it as our opinion that such an expansion need not be continued in the later part of that decade. In further education we have suggested that the rate of growth might be rather slower than in higher education as a whole. If our proposals for Colleges of Education and for further education in the early 1970's are aggregated, it should be possible to maintain the present proportion of qualified school leavers who enter universities, but no more. Of the total number of places in higher education, the university share will fall during this period, before it rises in the second half of the decade.*

491. Fluctuations from year to year in the proportion of total places provided in universities are inevitable, nor are they inconsistent with our central aim. What is essential is that at no point between now and 1980 should the competition for university places become more severe. To achieve this has been one of our principal aims in framing annual projections of the university places that are needed.† Throughout the period the proportion of qualified school leavers who enter universities never falls below the present level. We recommend that those responsible for carrying out our proposals should make this their minimum aim.

492. Taking account of the best estimates we can make at present of the needs in other sectors of higher education, we have not allowed for an increase in the proportion of qualified school leavers who enter universities until after 1975. For, on present evidence, if we recommend a much larger entry to the universities in earlier years, the growth of the total provision of places may temporarily outstrip the growth in the number of qualified

* Although the proportion of places will fall, actual numbers will still grow substantially: see paragraph 493.

† These are to be found in Appendix One, Part IV, Tables 51, 52 and 53.

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applicants, and this would prevent other sectors of higher education from obtaining enough entrants with the qualifications they require.

493. To wait until 1975 may seem a long delay in putting into effect one of our central objectives. But, apart from the need to consider higher education as a whole, we have also borne in mind the likelihood that other institutions will become more attractive to students, thus in some measure easing the competition for university entry. We are also sensible of the unprecedented expansion that universities will have to achieve in the years up to 1967/8—this is the subject of Chapter XVIII. Thereafter they will be looking for a period of consolidation. Even with no lessening of the degree of competition for university entry until the second half of the decade, universities will have to accommodate a growth from 197,000 students in 1967/8 to 219,000 in 1973/4 and 238,000 in 1975/6.

494. In Table 44 and in Chart E we summarise our recommendations for the scale and nature of future provision. The total need in 1973/4 is for about 390,000 places. Existing plans are likely to provide for less than 340,000 places in 1970. This could doubtless be increased by 1973/4 without new foundations, by a further expansion of existing institutions. But to adopt such a policy would be utterly mistaken. We conclude this section by reiterating the need for early action in establishing new universities. Even if the needs of the early 1970's can be met without them, the situation in the later period will be irretrievable if a start is delayed. It is to this task that the university world will have to devote much effort over the next ten years if the ground is to be prepared for a growth to a total of some 350,000 university places by 1980/1.

TABLE 44
Places needed in full-time higher education: by sectors
Great Britain 1973/4 and 1980/1

					Thousands			
					Universities	Colleges of Education	Further education	All higher education
England and Wales:								
1962/3 (actual)	...	...	...	...	108	49	28	185
1973/4	...	...	...	...	179	111	45	335
1980/1	...	...	...	...	291	131	59	481
Scotland:								
1962/3 (actual)	...	...	...	...	22	6	3	31
1973/4	...	...	...	...	40	11	6	57
1980/1	...	...	...	...	55	15	7	77
Great Britain:								
1962/3 (actual)	...	...	...	...	130	55	31	216
1973/4	...	...	...	...	219	122	51	392
1980/1	...	...	...	...	346	146	66	558

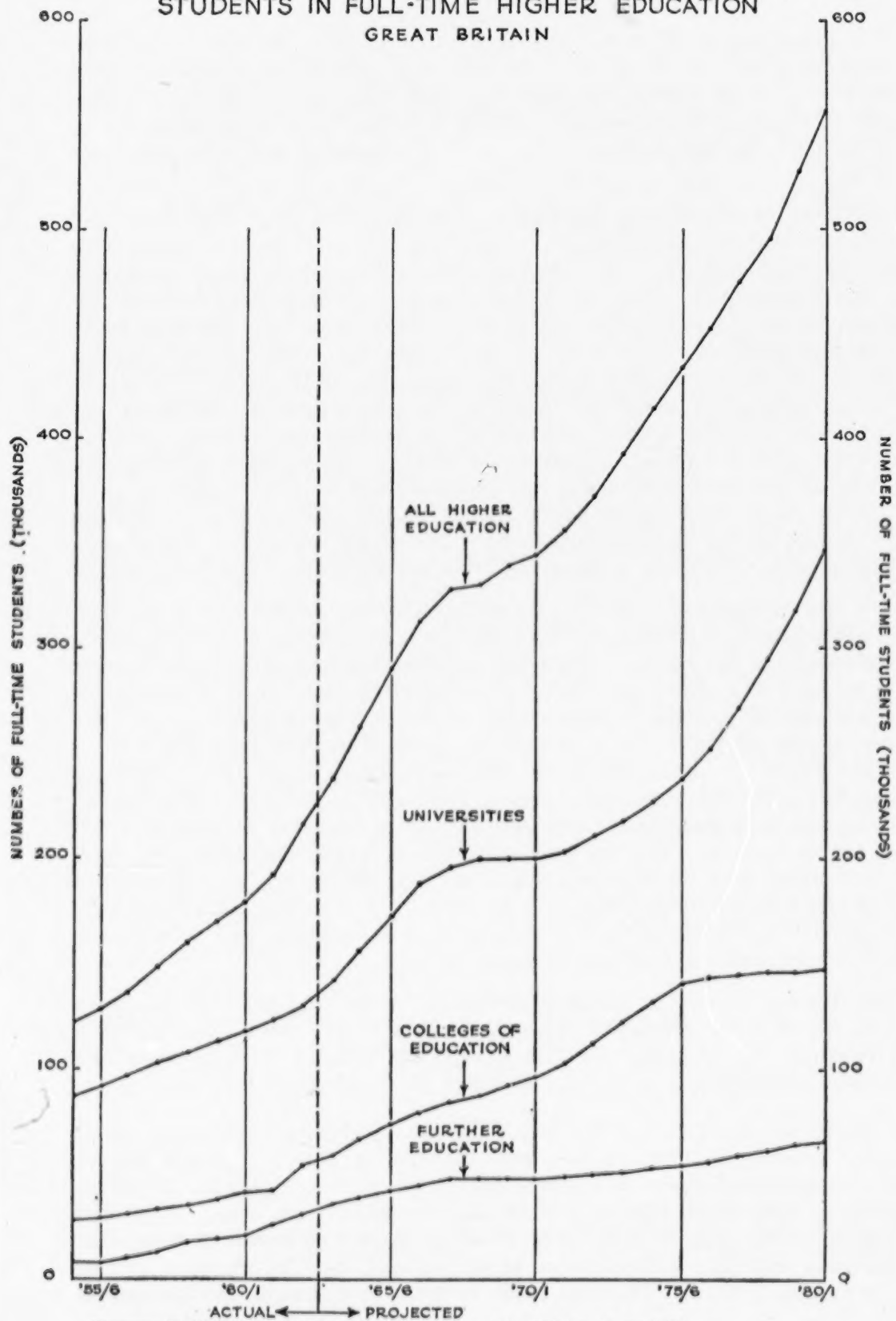
Source: See Appendix One, Part IV, Tables 51, 52 and 53

- Notes: 1. The first column includes Colleges of Advanced Technology, the Heriot Watt College and the Scottish College of Commerce.
2. Annual figures of places needed are given in Appendix One, Part IV, Tables 51, 52 and 53.

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CHART E

STUDENTS IN FULL-TIME HIGHER EDUCATION
GREAT BRITAIN



Source: Table 44 and Appendix One, Part IV, Tables 47 and 53
Note: See note to Table 44.

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THE LOCATION OF UNIVERSITIES

495. The location of universities is already in large measure determined, since the great majority of the institutions that will be found in 1980 already exist or at least possess the sites on which they are to be built. There still, however, remains a choice in the location of new institutions to be founded and existing colleges that are to be expanded and given university status.

496. Most of the existing universities grew up in the large cities or at any rate in wide 'catchment areas'. This was largely because students then mostly lived at home. The original reasons for concentrating universities in large centres of population have gradually lost their force, particularly since the second world war, as the desire of students to move from home and the means for their doing so have increased. The changed circumstances of many students, the concentration of certain fields of study in certain universities and the recognition by award-granting bodies of the value of residence away from home are among the factors that have transformed the pre-war pattern. In 1938/9, 42 per cent. of full-time students lived at home; today the proportion is only about 20 per cent. The number of students living in accommodation provided by their university, or in lodgings, has risen from about 30,000 to over 90,000, while the number living at home has remained relatively static at 20-25,000.

497. We understand that the University Grants Committee, in advising the Government on the location of the seven universities recently founded, assumed that the present mobility of students would be maintained or even increased. But other important factors also influenced their recommendations. By 1961, when the Committee advised the government on the location of the six most recent universities, plans were well advanced for the development of the Colleges of Advanced Technology, all of them in densely populated areas and affording alternative means of obtaining an education in science and technology similar in standard to that provided in the universities. This led the Committee to favour sites in smaller cities where there was no provision for university education. The Committee was also strongly influenced, by the availability of sites that could be rapidly developed to accommodate not less than 3,000 students, and of adequate housing for staff and lodgings for students.

498. We do not criticise decisions for which so strong a case can be made. But certain other considerations need to be stressed when future policy is considered. In particular we wish to urge the claim of the large cities and centres of population for further facilities for higher education.

499. We do so, first, for the benefit of the institutions themselves. It is most valuable for the teachers and students in academic institutions to have convenient access to national institutions such as libraries, museums, galleries and other cultural centres and to learned societies. It is also important for them to have easy access to centres of industry, commerce, medicine and law, to institutions of central and local government, and to research institutions. Two-way traffic between such centres and universities

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is of great benefit particularly in the natural sciences, technology, medicine and the social sciences. Such intercourse is most readily established in large centres of population and particularly in great cities.

500. A big city can also bring practical benefits. It can be a 'catchment area' for students and may also be able to supply more lodgings. In these ways the need for halls of residence may be kept to more manageable proportions.

501. There is also a benefit to the cities themselves. The presence of a university can stimulate cultural activities; it can improve the standing of the professions, in subjects such as medicine and Education, and provide through its staff and students a rich addition to the variety and interests of the population.

502. There are therefore weighty arguments in favour of fostering further development within large cities. Of the new universities to be founded and the existing colleges selected for the eventual granting of university status we hope that the larger number will be in great centres of population or in their vicinity.

503. This raises the further question whether it is reasonable for one city to have more than one university. When the question is formulated explicitly the answer is obviously 'yes'. In the past there has been some resistance to this notion, but our recommendations for the future of Colleges of Advanced Technology show that we have no such hesitations. The unreality of the objections sometimes expressed was exposed before we reported by the announcement about the future of the Royal College of Science and Technology, Glasgow. In our judgment there can be no objection to more than one university in a city. Federal arrangements may in some places prove desirable if substantial advantage is likely to be gained, but there is nothing that makes federation inherently preferable to independence.

AREAS OF STUDY

504. Our estimate of the total demand for places was based on projected trends in the numbers of qualified school leavers. A similar projection of the changing balance between the numbers wanting to study arts, science, technology and the rest is not possible, nor would it necessarily be appropriate. From 1952 to 1959 there was a gradual swing towards science in school leaving examinations, but this is no longer in evidence, as Table 45 shows. It is hard to interpret this information and distinguish temporary fluctuations from permanent trends. Moreover, a critical factor influencing the future balance of studies in schools may well be the kind of places provided in higher education.

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TABLE 45
Passes in mathematics or science as a percentage of all passes
at Advanced Level England and Wales 1952-62

										Percentage
1952	...	...	...	...	...	...	...	...	...	49.2
1953	...	...	...	...	...	...	...	...	...	49.2
1954	...	...	...	...	...	...	...	...	...	50.0
1955	...	...	...	...	...	...	...	...	...	50.7
1956	...	...	...	...	...	...	...	...	...	51.2
1957	...	...	...	...	...	...	...	...	...	52.8
1958	...	...	...	...	...	...	...	...	...	53.8
1959	...	...	...	...	...	...	...	...	...	55.1
1960	...	...	...	...	...	...	...	...	...	54.8
1961	...	...	...	...	...	...	...	...	...	53.9
1962	...	...	...	...	...	...	...	...	...	53.1

Source: Ministry of Education

Note: 1. Passes in general studies, technical drawing, art, music, craft, handicraft and domestic subjects are excluded throughout.
2. Double mathematics is counted as two subjects in all years. This combination is first recorded in 1957.

Universities

505. At present 40 per cent. of students in universities and Colleges of Advanced Technology, taken together, are studying in humanities and social studies ; 26 per cent. are studying science, 19 per cent. are studying technology and 15 per cent. are studying other subjects. Plans already announced for expansion in universities and Colleges of Advanced Technology would by 1966/7 imply a slightly altered distribution of students, 37 per cent. of the places being for those studying arts subjects, 28 per cent. for those studying science, 23 per cent. for technology and 12 per cent. for other subjects.*

506. The development of general courses straddling present departments and faculties will make simple percentage divisions of the kind just quoted less practicable. To make any such assessment requires a subjective judgment of the kind of developments most likely to meet national needs and produce educated citizens in the twenty-first century. Although specific forecasts of demand in particular occupations are relevant for courses specifically related to those occupations, in general estimates of needs in employment cannot offer precise guidance in settling the future balance of faculties. The majority of graduates will, we hope, be sufficiently versatile to be capable of varied employment. The following paragraphs, therefore, aim only at giving a general picture of the direction in which universities and Colleges of Advanced Technology should collectively move.

507. Administration both in industry, in commerce and in the public service will need by 1980 many more people who have received a general education in scientific subjects. A science course, whether pure or applied, can make as valid a contribution to general education as any other.

* Data on the present distribution of students between faculties in different university groups, and the changes in this distribution over time, will be found in Appendix Two (A), Part I.

and now that developments in science are increasingly a part of daily life there will be few who have no interest in it. There should therefore be no arbitrary limit set to the provision for young people to study scientific subjects.* While the proportion—though not of course the number—of students taking medical subjects continues to decline after 1966/7,† we envisage some further increase beyond 51 per cent. in the proportion of students taking science and technology. As Chapter X has indicated, within this total there is need for the growth of technology (interpreted in a broad sense) relative to science. Clearly the provision of courses that equip a man solely for a particular vocation should not be expanded if little additional demand is expected for such services, but this does not lessen the argument for more people with broad knowledge of a range of technological processes. In the light of this, our views would best be met if half of the students reading science and technology in 1980 were engaged in technological studies, compared with some 43 per cent. at present.

508. None of this implies a reduction after 1966/7 in the proportion of students taking arts subjects. This we should view with concern, for a growing proportion of students in this category have been taking social studies and we expect this trend to continue; and any decline or weakening in the study of the humanities would impoverish the intellectual and spiritual life of the country.

Other institutions : the total pattern of studies

509. In Colleges of Education we do not think that there are sufficiently firm grounds for assuming any change in the balance between areas of study. In further education it is necessary to allow for the shift in emphasis recommended in Chapter X. If these assumptions are aggregated with those adopted for universities, the resulting pattern of studies in 1962/3 and 1980/1 is as indicated in Table 46. We must add at once that this table does no more than indicate the broad pattern we think desirable for 1980. In fact, if our recommendations are accepted, many students will be engaged on courses of study at first degree level embracing subjects drawn from more than one of the main areas indicated. The table is intended to show only the numbers whose studies should be centred in a particular area and it is the total impression to which we would draw attention, rather than to any particular figure. The chief features of the table are the virtually constant proportion taking arts subjects, the increased proportion taking science, the greater increase in the proportion taking technology, and the relative decline in the proportion taking medical subjects.

* The recent report of the Advisory Council on Scientific Policy supports this view—see *Scientific and Technological Manpower in Great Britain, 1962* (Cmd. 2146).

† Medicine and other medical subjects, at present taken by 13 per cent. of university students, are assumed to be taken by only 6 per cent. in 1980/1. As we explained in Chapter VI, this estimate is based on discussion with the University Grants Committee. It implies a growth in the number of students taking medical subjects from 16,500 in 1961/2 to 21,000 in 1980/1.

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TABLE 46
Subjects studied by students in full-time higher education: by sector
Great Britain 1962/3 and 1980/1

	Number of students (thousands)				Percentage of students taking each subject	
	Univer- sities	Colleges of Education	Further education	All higher education	Univer- sities	All higher education
1962/3						
Arts	52	28	4	84	40	39
Science	34	10	3	47	26	22
Technology	25	1	12	38	19	17
Medical subjects	17	—	—	17	13	8
Other subjects	2	16	12	30	2	14
All students ...	130	55	31	216	100	100
1980/1						
Arts	127	74	13	214	37	38
Science	97	26	10	133	28	24
Technology	98	2	26	126	28	23
Medical subjects	21	—	—	21	6	4
Other subjects	3	44	17	64	1	11
All students ...	346	146	66	558	100	100

Source: See Appendix One, Part IV, Table 54.

Notes: 1. Universities in this table include the Colleges of Advanced Technology, the Heriot Watt College and the Scottish College of Commerce.

2. 'Other' subjects are: in universities, agriculture; in Colleges of Education, mainly domestic science, physical education, music, art and handicraft; and in further education, mainly art and architecture.

PART-TIME STUDY AND PROFESSIONAL EDUCATION

510. Our terms of reference relate to full-time higher education. Our picture of the future pattern would, however, be incomplete if it did not refer to other forms of higher education. As we showed in Chapter III, a considerable amount of work at degree level is done by part-time or private study, together with much other work falling within the definition of higher education set out in Chapter I. Some universities afford facilities for part-time work, but most part-time study takes place in further education. Other work, sometimes of a high quality, is done by students working alone or under the guidance of the correspondence colleges. Up to the present, part-time higher education has been growing at the same rate as full-time education, and we believe that it must continue to grow. As access to full-time courses becomes easier the rate of growth may sharply diminish, but in the period up to 1980/1 the indications are that total numbers will not fall.*

* On the projection of the future number of part-time students in Appendix One, the total of part-time students in higher education will rise from 110,000 in 1962/3 to 195,000 in 1973/4, with a small rise thereafter (see Part IV, Section 9 of the Appendix). The small rise during the later 1970's is the assumed effect of the growth in the proportion of qualified school leavers who apply for, and enter, full-time courses.

511. Much of the study for professional examinations, particularly in technological fields, is organised in technical colleges. But outside the public system there are organised classes for prospective barristers, solicitors, accountants and others who are articled for a period with practitioners of their profession before proceeding to the necessary examinations. Other professional associations, such as the Institute of Actuaries, run courses of lectures for prospective candidates. But for many students in the commercial field the main form of training outside the office is by correspondence. One half of those studying for commercial qualifications take correspondence courses as their only form of organised instruction off the job.* It is difficult to generalise about modes of preparation, but in most cases it can be said that, since the examinations are designed to maintain professional quality, the standards are severe. Criticism therefore is likely to be based much more upon lack of humanistic breadth and upon narrow technicality than upon absence of intellectual difficulty. And we have little doubt that some of the criticism has in the past been justified. A lawyer, an accountant or a company secretary trained in this way was not likely to be lacking in professional knowledge as compared with his counterpart who had passed through a university or some other institution of higher education. But he was perhaps less likely to be sensitive to the general implications of his subject, and for that reason less aware of the currents of change.

512. In recent years more and more professional bodies have been changing their requirements so as to give certain exemptions to candidates having degrees or other qualifications obtained in institutions of higher education. We have no doubt that this tendency will grow and we welcome it, not only in the interests of liberal education but also because nothing but good can come from a more intimate co-operation between professional bodies and institutions of higher education.

THE EDUCATION OF ADULTS

513. We have hitherto concentrated on the education of young people. But higher education is not a once-for-all process. As the pace of discovery quickens it will become increasingly important for practitioners in many fields to take courses at intervals to bring them up to date in their subjects. A rapid development of such courses in university institutions is one of the recommendations we made in Chapter VIII. At present a wide variety of courses for graduates and others in industrial employment is offered by technical colleges as well as Colleges of Advanced Technology but, even so, there are far too few students taking refresher courses and courses of further training. This is not because of a dearth of courses, for there have been notable developments in recent years, but partly because of inadequate support from employers and partly because of a lack of awareness of the opportunities that exist.

514. It is particularly important that such courses should be available for married women. Before the war over three quarters of the women in employment were unmarried; now more than half of them are married.

* An account of our statistical inquiries relating to professional institutions and professional qualifications in the fields of technology, commerce and law will be found in Appendix Two (B), Part V.

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Many more married women go out to work (over a third now, compared with a quarter in 1951 and a tenth in 1921). At the same time the age of marriage has fallen and the expectation of working life has lengthened. As a result a new career pattern has emerged: a short period of work before marriage, and a second period of work starting perhaps fifteen years later, and continuing for twenty years or more; and the indications are that this pattern will become increasingly common. The prospect of early marriage leads girls capable of work in the professions to leave school before they have entered the sixth form and, even after sixth form studies, too many girls go straight into employment instead of into higher education. When their family responsibilities have lessened many of them will desire opportunities for higher education. And many if not most married women who have already enjoyed higher education will need refresher courses before they can return effectively to professional employment. This will be particularly true for doctors, for teachers and for social workers, but there will also be a need in other fields such as commerce and languages. There is here a considerable reserve of unused ability, which must be mobilised if the critical shortages in many professions are to be met. The most economical use of existing resources will be made by organising such courses in existing institutions, but it is important that the arrangements should be both flexible and varied to suit varying needs. Not all the education of married women need be on a full-time basis: it may often be easier to arrange part-time courses and more convenient for married women to attend them. Wide publicity should be given to all courses, so that no suitable recruits are lost.

515. In most cases a married woman returning to her profession is involved in extra domestic expenditure and must therefore earn from the start. We therefore recommend that adequate financial arrangements should be made to enable married women to take refresher courses; financial support should also be available for older women who wish to take initial courses of higher education.

516. The courses we have so far been considering fall basically within the definition of higher education set forth in Chapter I: the instruction is above the level required for the Advanced level of the General Certificate of Education. But no comment on the education of adults would be complete without a reference to liberal 'adult education' as the term is officially employed.* To enter a course of adult education a student is not necessarily required to have advanced qualifications nor does he normally obtain any qualifications on completion of the course. His purpose is primarily to broaden his understanding and, judged in this light, work in adult education must clearly form part of any survey of higher education not bounded by technicalities of definition.

517. We first mention the full-time courses in the residential colleges, such as Ruskin College and Coleg Harlech. The quality of their work is demonstrated by the fact that a successful student may secure admission to

* A description of the present provision for adult education will be found in Appendix Two (B), Part VI.

The future pattern of higher education

a university as a senior student. For years these colleges for adult students have been carrying on in the face of increasing financial difficulties. The records of past students are an eloquent testimony to the value of the work they have done in providing a chance for those who in one way or another have not had opportunities earlier. The submissions the colleges have made to us show beyond doubt that there is great demand for their courses. We recommend that consideration should be given to assisting them in the immediate future by capital grants, and also by enabling suitable entrants to obtain adequate financial support during their studies.

518. Finally we must refer to the activities of the Extra-Mural Departments of the universities, to the Workers' Educational Association and to the very extensive provision made in this field by local education authorities. All these bodies have contributed much to the general education of the community. Many men and women develop new interests in their mature years in such topics as problems of citizenship, economics, international relations, local history and archæology, philosophy and science. The demand exists on a large scale and the response of the universities, of the local authorities and their partners has won for them the gratitude and respect of many whose experience has been necessarily far removed from the academic way of life. There is now much similar activity abroad, but in this field the country can congratulate itself on its pioneering work. Yet there is clearly much scope for further development, in conjunction with the television services, for example, and other new media of communication. We hope that the universities and their partners will co-operate in this task. If this country is to maintain its proud record, further support for this kind of study will be needed in the future.

CHAPTER XII

Staffing

519. In this and the following chapter we come to a series of interlocking questions that are at the heart of higher education. The merit of any educational institution depends on the quality of those who teach and learn in it and the test of its administration and organisation is how well it facilitates the free communication of mind with mind. In higher education, as distinct from school education, both partners to the enterprise of learning are adult and both are where they are by choice. Although responsibility for success in any joint enterprise must always rest more heavily on the senior partner, the responsibility is not his alone. A passive student is a contradiction in terms; and if it is true that a good teacher makes good students it is also true that good students make good teachers. Higher education should attract, and in some measure create, students who will make demands upon their teachers and teachers who can both satisfy those demands and stimulate further curiosity and intellectual energy.

520. It follows that more teachers are required for a given number of students in higher education than are necessary in the schools. Further, there are particular reasons why universities should be generously staffed. Universities have an obligation to preserve and advance knowledge and to serve the intellectual needs of the nation. University teachers must keep abreast of new developments in their subjects and need time for reflection and personal study. Many also want to make their own contribution to such developments and this desire must not be frustrated if they are to remain intellectually alive. In addition, the influence and authority of those who have become acknowledged experts in their own fields of study radiate out far beyond the walls of the university in which they teach. Such persons are rightly required to undertake many duties in the cause of learning and in the interest of the country and indeed of the world, for learning is international. These compete for time with duties within the university. Again, it is the duty of universities to foster the study of new subjects and to ensure that subjects that are important but that do not attract great numbers of students are adequately studied. The ratio of teachers to students in the universities thus needs to be more favourable than the ratio in other institutions of higher education that do not have in the same measure the duty to preserve and advance knowledge.

THE PRESENT STAFFING OF HIGHER EDUCATION

521. The present ratios between students and teachers in the various sectors of higher education are the outcome of complex historical factors and of policies that have been gradually evolved through adjustments in individual institutions and departments to changing situations and needs.

522. The student/staff ratio* is a rough-and-ready device for conveying the adequacy of staffing; the overall ratio for any one sector of higher education condenses into one figure a range of different conditions in different institutions and in different faculties and departments within the same institution, and may conceal shortages in some subjects and disproportionate strength in others. However, a discussion of staffing can hardly proceed without showing at least the orders of magnitude of the ratios; the qualifications to be borne in mind in interpreting them, together with detailed figures, are discussed fully in Appendix Three.

523. There were in 1962/3 about 8 students to 1 full-time teacher in the universities, 8:1 in Colleges of Advanced Technology, 7:1 in the remainder of further education in England and Wales and 9:1 in Scottish Central Institutions, 10:1 in Training Colleges and 16:1 in Scottish Colleges of Education. Nearly all university teachers are graduates, as are about 80 per cent. of the full-time staff in Colleges of Advanced Technology, perhaps 65 per cent. in the rest of further education in England and Wales and 45 per cent. in Scotland, 60 per cent. in Training Colleges in England and Wales and 70 per cent. in Scottish Colleges of Education.†

524. For the universities, central government, through the University Grants Committee, establishes the salary scales of university teachers and also suggests the minimum ratio of junior to senior teachers below the grade of professor. This ratio influences the broad pattern of staffing in each institution. But within these limits a university decides for itself how to spend its recurrent grant, and how much in any one department is spent on teachers, other staff, equipment, or other things.

525. Until the Colleges of Advanced Technology were transferred in 1961 to direct grant status under the Ministry of Education, their staffing was decided by the college governing body and the local education authority concerned. This is the present arrangement in Regional and Area colleges. In England and Wales, staffing in the colleges for the education and training of teachers that are provided by local education authorities is determined by the governing body and the authority maintaining the college. Colleges provided by voluntary bodies receive 100 per cent. grant for recurrent

* We define the student/staff ratio simply as the number of full-time students divided by the number of full-time staff. This differs from the current practice of the University Grants Committee, which excludes from the total number of staff those whose grade or place of employment suggest that they do little teaching, and also counts each postgraduate as equivalent to three undergraduates (except in arts, where the Certificate of Education students are given a weighting of one, and other postgraduates a weighting of two). This matter is discussed in Appendix Three, Part I, Section 2.

† More details on the staffing ratios in universities, including historical trends, will be found in Appendix Three, Part I, Section 2.

For the staffing ratios in further education, both full-time and part-time students have been included and divided by the total number of full-time staff. (Four part-time day students or ten evening students are regarded as equivalent to one full-time student.) For a discussion of the staffing ratios in these institutions see Appendix Two (B), Part IV and Appendix Three, Part III.

The estimates of graduates in further education relate to the proportion of graduates among full-time teachers engaged on advanced work. The basis for these estimates is discussed in Appendix Three, Part III.

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expenditure from the Ministry of Education and are free to expand or contract their teaching staffs within the limits of their approved estimates. For the Scottish Central Institutions and Colleges of Education staffing is a matter for consultation between the governing bodies and the Scottish Education Department.

Universities

526. Rough comparison with the practice in some other countries might lead to the supposition that the student/staff ratio in the universities of this country is over-generous. Many continental universities have a quite different tradition and practice: as Chapter V shows, they have far more students per teacher. University education, it could be argued, is therefore not essentially associated with generous staffing. We believe, however, that this country's tradition and practice is valuable and is something that should be preserved. It is linked with the fact that first degree courses are shorter and that the wastage rate among students is lower. Although a high wastage rate is partly a function of lack of selection, it can also be caused by inadequate staffing. To compare the ratio of full-time teachers to full-time students in universities here with the ratio in continental universities can therefore be somewhat misleading. If we take, instead, the ratio of full-time teachers to the output of graduates, comparison does not suggest that our universities err on the side of over-staffing. We must also take into account the great volume of research that is undertaken in our universities. Some of those who for statistical purposes count as full-time academic staff are not in fact engaged in teaching. If, as in some other countries, a greater proportion of research were done in specialised institutes, the student/staff ratios in our universities would be different. We shall argue in Chapter XIII that there is a vital relationship between teaching and research. We think that, except for the study of specialised problems of industrial application, the further development of research institutes unduly divorced from universities would not serve the cause of research and would impoverish the strength of the universities as teaching institutions.

527. We have argued in Chapter VIII that there should be a great expansion in postgraduate studies, and particularly in the provision of courses of advanced instruction. Such courses will place a heavier burden on teachers than the instruction of undergraduates. With this in mind, we consider that the present student/staff ratios in those institutions particularly concerned with research and postgraduate training must not only be maintained but should be improved as and when this becomes practicable.

Other institutions

528. The present staffing in Colleges of Advanced Technology and in further education may also appear generous.* But there are a number of reasons for the present position. Our surveys show that full-time students in these colleges receive more hours of instruction than university students. Moreover, many of the full-time courses of degree level have been only recently introduced, and a new course requires a certain number of teachers to start it,

* It is described in some detail in Appendix Three, Part III.

irrespective of the number of students who enrol. Further, most Regional and Area Colleges are meeting a wide range of needs in their locality and this has sometimes meant that not all the courses offered are attended by the maximum number of students who could be accommodated. Nearly all these colleges, too, teach both full-time and part-time students, and the problems of organisation in such circumstances are likely to require more generous staffing than in colleges that deal only with full-time students. For these reasons the staff of Colleges of Advanced Technology and of Regional and Area Colleges tend, as our surveys show, to teach for considerably longer hours than do university teachers, although the staffing ratios in these colleges are similar to those in the universities.*

529. Clearly we would expect that, both in terms of numbers and grades, the staffing of the Colleges of Advanced Technology should be similar to that of equivalent departments or faculties of universities. When further colleges are selected for development as institutions of university level, similar staffing policies will be needed. In the rest of further education, the large-scale development of full-time courses for first degrees, aided by a policy of concentrating effort, may in certain cases lead to staffing arrangements more economical than those which are at present possible.

530. The present student/staff ratio in the Training Colleges in England and Wales is considerably more favourable than the ratio in the Scottish Colleges of Education.† This is largely due to differences in the nature of the courses and in the composition of the student bodies. We hope that the changing pattern of work in the Scottish colleges will be matched by a continuing improvement in the provision of staff. In England and Wales, although many of the colleges are small, a wide range of subjects may be taught in any one college; this tends to inhibit the most effective use of teachers. The developments we advocate will lead to much larger colleges in the future, and will concentrate in some measure the students following courses leading to degrees. These developments should enable teachers to be deployed to better advantage.

531. But we would add that, both in further education and in the Colleges of Education, we would expect the student/staff ratio to allow for the fact that teachers need time for reflection and personal study. We should deplore any denial of opportunities for research to those anxious and competent to make a contribution either to the advancement of educational theory and practice or to the academic subjects they are concerned with. It would be alien to our whole conception to attempt to draw a sharp line between university teachers and the teachers in other institutions of higher education. In stressing that research is a primary function of universities, we would not wish to suggest that it is only in universities that fresh thought is needed and original work is done.

* The teaching hours of staff in each sector of higher education are given in Appendix Three. The hours of instruction received by students will be found in Appendix Two (B), Part IV, with a detailed discussion of the relationship between the student/staff ratio, the size of the classes, the teaching hours of teachers and the hours of teaching received by the students in each sector.

† Details of the present staffing in the Training Colleges of England and Wales and in the Scottish Colleges of Education are given in Appendix Three, Part II.

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Higher education as a whole

532. To sum up, we believe the present staffing of the various types of institution of higher education is, in general, appropriate, and we recommend that it should not be allowed to become less generous in the future. If more economical arrangements are possible in some parts of higher education as the organisation of colleges changes, this will be offset by desirable improvements elsewhere. Furthermore, the expansion we have recommended in earlier chapters will involve all institutions of higher education in very big changes in the period up to 1980. If, as we recommend in Chapter XI, the total number of students in universities is to be about 350,000, and if the changes in first degree courses we advocate are to be put into effect, the universities will have before them massive exercises of academic and physical planning. The great majority of university teachers will be involved in this planning in one way or another. Even in the detailed planning of new buildings, although administrators can help, teachers must be involved at every stage; they know what a new laboratory, a new department, or a new series of buildings should provide. The Colleges of Education will also be engaged not only in great physical expansion but in the planning of new patterns of courses. Much of further education will be similarly occupied. These are essential tasks, which can only be accomplished adequately if proper staffing is maintained.

FUTURE STAFFING

533. We now have to answer the important question whether there is likely to be an adequate supply of teachers of the requisite ability to staff an expansion of higher education of the magnitude we are recommending. We are aware that this question causes apprehension to many people who would welcome an expansion of higher education. Some may fear that, even if an adequate supply of able teachers can be obtained, this will be to the detriment of the professions and public service and, in particular, to the detriment of sixth form work in the schools.

534. Our detailed calculations of future staffing needs are given in Appendix Three, Part IV and we confine ourselves here to the main points of the argument. On the assumptions that present student/staff ratios and the present proportion of graduate teachers ought to be maintained, we estimate that the future pattern of higher education set out in Chapter XI will require 59,000 full-time graduate teachers in 1980/1 as compared with some 22,500 in 1962/3. In the universities and Colleges of Advanced Technology the numbers will have to rise from 16,750 to 45,000. In other institutions of higher education the total of graduate teachers will have to rise from some 5,750 to some 14,000.*

535. These are large increases. Whether or not they will be achieved depends on a host of factors, including the attractiveness of teaching in

* Non-graduate teachers will continue to have an important contribution to make both in the education and training of teachers and in further education, for in many fields a degree is not necessarily the most appropriate qualification. But, as will be clear from paragraph 523, the vast majority of teachers in higher education are graduates, and we have confined ourselves to the central problem of graduate staffing.

higher education in comparison with other professions. These are factors we discuss later. But it is vital to our argument to establish at the start that the staffing of the expansion we recommend will not in the long term claim an increasing share of the country's graduates. An expanding system of education produces enough potential teachers to maintain existing standards of staffing, provided that the rate of expansion is not accelerating.* In the expansion of higher education that we recommend the rate of expansion will vary to accommodate changes in the size of the relevant age groups; the annual requirement for teachers will therefore fluctuate from year to year. The number of graduates recruited as teachers in higher education during the last few years was 13·7 per cent. of home students graduating three years earlier. Table 47 shows the comparable proportions that will be required in future years, (on the assumption of a constant wastage rate among teachers†) and illustrates how the staffing problem will vary over the years. Two main conclusions follow: first, that recruitment is likely to present considerable difficulties in the years immediately ahead, and, second, that the average

TABLE 47
Graduates recruited as teachers in full-time higher education
as a percentage of home graduates three years earlier
Great Britain 1951/2-1978/9

			Percentage		
			Universities	Other full-time higher education	All full-time higher education
1951/52-1954/55	...	...	4·7	..	..
1955/56-1958/59	...	...	6·0	..	..
1959/60-1962/63	...	...	8·2	5·5	13·7
1963/64-1966/67	...	...	12·4	6·0	18·4
1967/68-1970/71	...	...	5·8	3·8	9·6
1971/72-1974/75	...	...	5·9	4·2	10·1
1975/76-1978/79	...	...	9·2	3·7	12·9

Source: Appendix Three, Part IV, Tables 5 and 6

- Notes:
1. For the purposes of this table, it has been assumed that the proportion of all entrants to full-time higher education who become graduates remains in the future as it is at present.
 2. For consistency, teachers needed to meet the demand for places in Colleges of Advanced Technology (and their Scottish equivalents) have in all years been included in 'Other full-time higher education'.
 3. The estimates for 1963/4 and after are based on the assumption that there is no change in student/staff ratios, in the proportion of teachers who are graduates, or in wastage rates among teachers.

* In other words, in the case of higher education, if the number of staff (and of students) expands at a constant rate of compound interest, the proportion of graduates who are required as teachers will remain constant. If, on the other hand, expansion proceeds at simple interest (i.e. by constant annual additions) it will require a diminishing proportion of graduates as teachers. These propositions are true if expansion occurs, as in our recommendations, because of increased entry, but not if it is mainly due to longer courses. The whole argument is set out in detail in Appendix Three, Part IV.

† The present wastage figure is estimated at about 4·5 per cent. per annum for university teachers, and 6·0 per cent. for teachers in other sectors. See Appendix Three for the basis of these figures.

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annual recruitment over the next sixteen years need be proportionately no higher than it has been over the past four.

536. The argument set out in detail in the last part of Appendix Three* should serve to allay fears that the expansion of higher education must take place at the expense of fifth and sixth form work in the schools. The number of pupils in the upper forms is reflected in the number of graduates some four years later. Thus the fifth and sixth forms, like higher education itself, tend in due course to generate their own teachers. The expansion likely to occur in these forms in future years will not, of itself, require more than a constant proportion of the output of graduates. Moreover, during the next five years, when expansion will be so rapid in higher education, it is fortunate that the population of the sixth form will, for demographic reasons, be stable or declining.

537. For some years, however, there has been deterioration in the qualifications of graduates teaching in the upper forms and this it is imperative to halt.† For if this decline were to continue the outlook would be gloomy, not only for the schools, but also in the long run for higher education itself. A further deterioration can only be halted if the proportion of good honours graduates who become school teachers is in the long term higher than at present. Yet, when all is said, the staffing of the schools must continue to depend mainly on conditions of service in the schools and on other factors unconnected with the expansion of higher education that we recommend. As the analysis in Appendix Three shows, the expansion need not of itself cause a deterioration in school staffing.

538. In higher education, there will be in the immediate future a serious aggravation of the strains and stresses of the past twenty years. After a period of unprecedented expansion, a further effort is called for. In the light of this, the conclusions just arrived at may sound complacent. But we were asked to take a long-term view and we are concerned at this point with what should be achievable in the early 1970's and in 1980. We are deferring discussion of the immediate difficulties until Chapter XVIII: we would only say here that the possibility of attaining our objectives in 1973 and in 1980 will substantially depend on what is done during the next five or six years. Given that effort will be forthcoming to surmount the approaching crisis, we are convinced that in the long run there need be no serious shortage of potential teachers of the quality required. Our conclusion would only be invalidated if the proportion of persons of high ability in the graduate population were to decrease. For reasons we have already developed in earlier chapters, such a decrease seems highly unlikely to result from the scale of expansion we have recommended.

539. Our arithmetical calculations imply that not merely maintenance, but also improvement, of student/staff ratios is in the long run possible. There will exist sufficient persons. Whether the required numbers will actually

* Appendix Three, Part IV, Section 3.

† In maintained grammar schools 13 per cent. of teachers who are thirty five years of age or over hold first class degrees, as compared with only 4 per cent. of those under thirty five.

be forthcoming is another question. The capacity of higher education to attract recruits of the necessary calibre will depend on the conditions of service it offers and on the economic inducements it holds out to those qualified to adopt other careers.

CONDITIONS OF SERVICE

540. The evidence that has been presented to us about the increasing difficulty of recruiting adequate academic staff in certain subjects, and the accompanying evidence of the persistent emigration of first class talent overseas, has caused us much concern. It has also been reported to us that the Colleges of Advanced Technology have not found it easy to recruit suitable teachers because the colleges lacked status. That, we trust, will be largely put right by our recommendations, and the reorganisation of their salary structure which is now being carried out. But there is a general problem of securing the services of graduates of high ability which runs throughout higher education; this is best illustrated by the acute shortages in certain sections of university employment. The figures published by the Royal Society* on the emigration of scientists sound a note of warning, and there is also other evidence, including figures of academic vacancies, which suggests that present conditions of service are insufficiently attractive in other faculties.† The difficulties in science have been much publicised; but the drain of talent abroad is also being felt in arts faculties. If this continues, the favourable view we have expressed about the long-term possibilities of expansion would have to be modified, and the short-term difficulties would be greatly increased. Conditions of service in the universities are therefore of great importance.

541. Such information on the salaries of university teachers as was available at the time of going to press is included in Appendix Three, Part I. The National Incomes Commission is at present undertaking a full review of the remuneration of the academic staff of universities and Colleges of Advanced Technology in the light of the need to provide for the expansion of higher education and the requirements of these institutions in relation to other types of employment drawing on persons with similar qualifications. It is clear from the government announcements that this is an *ad hoc* survey. Periodic reviews of the salaries of teachers in higher education will, however, have to be undertaken. We shall recommend appropriate machinery for this purpose in Chapter XVII.

542. In connexion with conditions of service in the universities we feel bound to refer to the widespread conviction that established members of the teaching staffs at Oxford and Cambridge receive, in one way or another, incomes that are, on the average, considerably higher than those available for comparable posts in other universities. Since the Oxford and Cambridge colleges do not make detailed returns on their outlays, it is extraordinarily difficult to estimate the emoluments of college fellows and tutors, and we have not conceived it to be our business to make a special

* *Emigration of Scientists from the United Kingdom*. (Royal Society, 1963).

† See, for example, Appendix One, Part I, Table 28.

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inquiry into the matter. But the evidence in Appendix Three* suggests that there is substance in the assertion that in one, at any rate, of these universities teachers of a given seniority receive higher emoluments than their colleagues elsewhere and that there is also a higher proportion of senior posts. We believe any such disparity between the incomes and prospects of persons doing similar work in different universities, which are all in receipt of public funds, to be unjust; and we consider its effects to be harmful. By adding a financial attraction to the already great attractiveness of Oxford and Cambridge it leads to too great a concentration of talent there and it militates against desirable movement between universities.† This is especially true in arts. Although some 25 per cent. of science professors now in other universities in England and Wales have at some stage been fellows of colleges at Oxford or Cambridge, the same is true of only some 10 per cent. of arts professors: no doubt the prospect of control of his own laboratories is an incentive to the scientist that is lacking to the teacher in arts. The matter is now under consideration by the National Incomes Commission and we confine ourselves to expressing the view that, if it is established that there are serious anomalies, these should be removed.

543. Conditions of service involve much more than matters of salary. Major factors in attracting able persons to teaching in all sectors of higher education are the prospect of rapid promotion to posts of responsibility, and the adequate provision of physical resources such as accommodation, library facilities, and scientific equipment and also of technical and clerical help. Here, again, the universities provide the best illustration of the problems.

544. Our analysis of promotion structure‡ suggests that prospects of promotion in the universities have changed little during the last few years, but are less good—at least in terms of reaching the professorial grade—than they were before the war. Before the war 20 per cent. of university teachers outside Oxford and Cambridge were professors; today the proportion is 12 per cent. We think that, in so far as it persists, the tradition that a department should have only one professor is outmoded and is not in itself a valid objection to the creation of more posts at this level. Apart from improving promotion prospects, there are positive advantages for teaching and research in a department with more than one professor. In addition, some of our witnesses have pointed to the setting of a minimum ratio of junior to non-professorial senior posts as an important factor in limiting the prospects of promotion. We recommend that the structure of university staffing should be reviewed as a whole,

* Appendix Three, Part I, Section 9 (paragraphs 122–129)

† Evidence on the qualifications of teachers in different university groups is presented in Appendix Three, Part I, Section 5. It is clear, for example, that a far higher percentage of teachers at Oxford and Cambridge than of teachers in other university groups have first class degrees. Some data on the mobility of teachers between universities (both in relation to the institutions in which they studied and to the institutions in which they have taught) are given in the same Appendix (Part I, Section 8).

‡ See Appendix Three, Part I, Section 9.

and that in such a review both the factors we have mentioned should be borne in mind.

545. Even more important, in our view, and we believe this to be the most important single factor that leads a man of ability to seek a career abroad, is the existence of good facilities and enough money for research, the availability of technical and secretarial help and generous allowances of sabbatical leave at regular intervals.

546. Apart from support through the University Grants Committee, university research in science and technology benefits greatly by grants from public funds made by the Department of Scientific and Industrial Research, the Medical Research Council, and the Agricultural Research Council, in support of selected work of timeliness and promise. We trust that such research grants, which have become essential to the well-being of many institutions of higher education, will be continued and extended in these and other fields.

547. Technical and secretarial help are essential for the effective work of teachers in higher education. Of the university staff who teach subjects that require the help of technicians, 60 per cent. consider that the help they receive is inadequate.* The difficulties that institutions of higher education have in recruiting technicians are well known. We think this problem is in danger of becoming more serious. Every effort should be made to solve it, not least because of the adverse effect on teaching that an acute shortage of technical assistants would have. We recommend that all large institutions such as universities should have effective training schemes, to which only young men and women with the requisite minimum educational qualifications should be admitted and in which promotion should depend on qualifying through existing recognised examinations. Such schemes, along with conditions of service and prospects of further promotion to posts of greater responsibility, should be widely publicised. The costs of such schemes should be met either by earmarked grants or by appropriate adjustment of the block recurrent grant.

548. In Chapter X we have stressed the desirability of freer movement of staff between higher education, government and other research establishments and industry. Arrangements for superannuation payments should be such as to facilitate this movement. Differences in superannuation schemes between the different sectors of higher education and between them and government service at present stand in the way of free interchange of staff. We hope that these schemes will be reconsidered by those concerned in order that movement may be more easily made.

PART-TIME TEACHERS

549. We recommend that more widespread use should be made of part-time staff in higher education. There are a considerable number of persons who would have a valuable and distinctive contribution to make as part-time teachers, and who would be willing to consider such employment. We think that ways should be found to enable them to do so. We were impressed on our visits abroad, particularly in the Netherlands, by the great

* See Appendix Three, Part I, Section 12.

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gain to the universities and to institutions such as the Delft Technical High School of having teachers partially in the service of the institution and partially employed in industry or the public service. In British universities at present, outside medicine, part-time teachers form only 3 per cent. of the teaching body. We do not think they should predominate in any faculty or department, as often occurred in the past in medical faculties;* this can make for discontinuity of organisation and be an obstacle to the development of research. We are, however, convinced that there is a need not merely for occasional lecturers who, having given a course of lectures, depart, but for persons holding part-time posts who would be intimately concerned with departmental policies in teaching and research. This applies with equal force in further education. Although about a fifth of advanced teaching in further education is already carried out by part-time teachers, this is mainly in evening courses and contributes little to the teaching of full-time students. In Training Colleges also, part-time assistance from experienced practising teachers—as well as secondment—can have a vitalising effect on the students' work. We shall refer in Chapter XVIII to the employment of part-time teachers in the years of emergency immediately ahead. But we believe their value is by no means only, or even mainly, in times of emergency. We believe that they would make a positive contribution to academic life and their presence would foster good relations between institutions of higher education and the world outside.

550. In some universities postgraduate students may be a further potential source of assistance in informal teaching and the conduct of discussion groups. At present about half of all students in courses leading to Ph.D. degrees do some teaching, the proportion being much higher in science than in arts.† There are obvious dangers here both for the postgraduate, who requires all the time he can find for his own work, and for the undergraduate, who should not be dependent on inexperienced teachers. But with proper safeguards and with proper departmental supervision a small amount of teaching is good for some postgraduates, and would give them an introduction to university teaching. Further, undergraduates may benefit from being taught by those who have recently passed along the same way. We do not wish to see any development that prolongs the time spent in postgraduate study and reduces its effectiveness, or leads to particular classes of student or types of instruction being regarded as a province for postgraduates. But, subject to this, the wide variations between universities in their present use of postgraduates for teaching suggest that some could derive more help from this source, and we recommend that they should do so.

551. In conclusion we would stress again that the quality of an institution depends on those who work in it and that the future of the system of higher education in this country depends on its capacity to attract able men and women in sufficient numbers to its service and to retain them in conditions that allow them to use their abilities to the full.

* Since the war it has been the policy to increase the proportion of full-time staff in medical subjects, which was formerly very low. This has been an important development which we must not be thought to criticise.

† Omitting those studying for the Certificate of Education, 15 per cent. of arts postgraduates, 49 per cent. of science postgraduates and 25 per cent. of postgraduates in applied science do some teaching (see Appendix Two (B), Part IV).

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Teachers and students

552. We now turn to some discussion of the relations between teachers and students. We shall first consider the balance between teaching and research. We shall go on to examine teaching methods and the problem of wastage, that is, the failure of some students to obtain the qualification for which they enrol. Finally we shall discuss some other matters of considerable importance in higher education: the promotion of social intercourse between teachers and students, the provision of living accommodation for students and the proper use by students of the vacations.

TEACHING AND RESEARCH

553. Much of the evidence submitted to us has been concerned with the proper balance of teaching and research in the universities. We use the term 'research' as a convenient portmanteau word to cover the wide range of intellectual activities that serve to increase man's power to understand, evaluate and modify his world and his experience. On the one hand it has been strongly argued that more and better opportunities for research are needed, and that a main factor in the attractiveness of the universities in the United States is the superior research facilities they offer. On the other hand it has been argued that the emphasis on research in the universities is excessive, and that university teachers devote too much time and energy to their personal research to the detriment of their teaching.

554. We are in total disagreement with the extreme view that would remove research altogether from the universities and concentrate it in research institutes, leaving the universities to devote themselves wholly to teaching, and we are confident that the experience of the world is against such a separation. Developments in the Soviet Union, described in Appendix Five, are relevant here. We would not dispute that at times a university teacher is confronted with conflicting claims on his time and attention; but the need to reconcile differing professional obligations is not peculiar to the university teacher. We would not dispute either that some students could be better taught. But the remedy for this is to be sought in improved arrangements for teaching and these need not be made at the expense of research.

555. It is the essence of higher education that it introduces students to a world of intellectual responsibility and intellectual discovery in which they are to play their part. They have to be taught techniques and methods and acquire a corpus of relevant knowledge; but, more important, they have to be inspired to learn and to work. Here an ounce of example is worth a pound of exhortation. The element of partnership between teacher and taught in a common pursuit of knowledge and understanding, present to some extent in all education, should become the dominant element as the pupil matures and as the intellectual level of work done rises. In the

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graduate school there are no ultimate authorities, no orthodoxies to which the pupil must subscribe, and he finds himself taking his part, however humbly and modestly, in the task of making experience intelligible and illuminating areas of ignorance. It is true that only a minority of undergraduates have the ability and the wish to pursue their studies at a post-graduate level ; but the presence of work at this level gives intellectual and spiritual vitality to work at all levels in institutions where it is pursued. It is of the utmost importance that the ablest, who are capable of going forward to original work, should be infected at their first entry to higher education with a sense of the potentialities of their studies.

556. The student needs from the beginning to be made aware of the scope of his subject and to realise that he is not being presented with a mass of information but initiated into a realm of free enquiry. There is a reciprocal benefit to those engaged in research from being members of an institution where learning is not only advanced but communicated. Contact with able and lively young minds, and the setting of the teacher's own preoccupations in a wider context which the preparation of lectures demands, are of positive use as well as being a source of refreshment. Publication is itself a form of teaching and many scholars have acknowledged that their published work has gained much from the discipline of the lecture, the class, and the tutorial.

557. Most discussion of this subject clouds the issue by setting teaching and research over against each other as antithetical and supposing an opposition that exists only at extreme points, as if teaching were nothing but patient recapitulation and explanation of the known and all research were a solitary voyage to discover something that will be intelligible to a mere handful of persons. There is no borderline between teaching and research ; they are complementary and overlapping activities. A teacher who is advancing his general knowledge of his subject is both improving himself as a teacher and laying foundations for his research. The researcher often finds that his personal work provides him with fresh and apt illustration which helps him to set a subject in a new light when he turns to prepare a lecture.

558. We considered it important to throw some light on the balance between teaching and research in the work of university teachers ; and this was one of the aims of the survey of university teachers which we conducted jointly with the Committee on University Teaching Methods under the chairmanship of Sir Edward Hale, appointed by the University Grants Committee. As part of this survey, university teachers were asked to classify their own professional work during a fortnight in February, 1962. The two main categories of work are, of course, teaching and research. The category 'private study' was included in the questionnaire to cover work that could not easily be classified either as teaching or as research. There are also, of course, a number of administrative and semi-administrative activities that have to be taken into consideration. Table 48 summarises teachers' replies to this part of the survey. It shows that, during term-time, on an average, teachers spend a third of their working time on teaching

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(including preparation and correction of students' work) and rather under a third on research. Appendix Three, Part I, describes the findings in detail. But, generalising from these averages, we think that in the universities the cases where research is carried too far at the expense of teaching are considerably fewer than those where teaching time might well be lessened to permit more time for research.

TABLE 48
Percentage of the professional working time of university teachers
spent on various activities during term
Spring Term 1961/2

	Percentage						
	Teaching	Research	Private study	Adminis- tration	Other work within the uni- versity	Work outside the uni- versity	All working time
Grade							
Professors ...	26	18	9	25	13	9	100
Readers ...	30	29	10	14	10	7	100
Senior lecturers ...	35	23	10	13	12	7	100
Lecturers ...	37	26	12	9	11	5	100
Assistant lecturers...	42	32	13	4	7	2	100
Demonstrators ...	36	41	10	3	7	3	100
Research staff ...	12	62	11	5	6	4	100
Others ...	20	31	16	15	9	9	100
Faculty							
Humanities...	40	22	12	11	10	5	100
Social studies ...	32	20	13	15	11	9	100
Science ...	34	34	9	10	10	3	100
Applied science ...	38	22	10	12	12	6	100
Pre-clinical medicine	25	40	12	8	9	6	100
Clinical medicine ...	19	29	13	9	13	17	100
University group							
Oxford and Cam- bridge ...	30	30	11	14	10	5	100
London ...	31	32	11	10	10	6	100
Larger civic ...	34	28	11	11	10	6	100
Smaller civic ...	39	23	12	12	9	5	100
Wales ...	40	23	10	10	12	5	100
Scotland ...	34	27	12	9	12	6	100
All teachers ...	34	28	11	11	10	6	100

Source: University teachers survey. (See Appendix Three, Part I, Section 10)

Notes: 1. The first column includes time spent in short-term preparation for teaching and in correcting students' work.

2. The fifth column includes time spent in examining.

559. Table 48 shows averages and in this connexion a discussion of averages is clearly of only limited relevance. Original work is essentially personal and though it should be fostered and encouraged it should not be forced or imposed as a duty on all teachers. Individuals vary greatly in their desire and their capacity to undertake original work. Moreover, the periods in their lives in which they most need time to pursue their own inquiries may vary with their temperaments and their fields of study. It is well

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known that in mathematics the creative period is usually very early and that in the physical sciences it is often earlier than in the biological. In general, in the humanities periods of production come much later than in the sciences. The average age of election to the Royal Society is considerably earlier than the average age of election to the British Academy. The young scientist needs time to press ahead with his research when his imagination is at its liveliest; his colleague in the arts may be better occupied in wide reading than in research on particular problems and he may well need more time free from teaching when his crop is ready for harvesting in middle life. A wide connotation must be given to the term 'research' if we are to apply it to all fields of study.

560. Further, there are many persons of first class ability, particularly in the humanities, who have never engaged in research in the narrow sense or felt any urge to publish, but whose breadth of culture, ripeness of judgment and wide-ranging intellectual curiosity are priceless assets in a department or a college. There are others who develop powers of organisation and administration that are invaluable for the smooth running of a large department. Like all communities, a university needs a diversity of gifts and any notion that there is an ideal division between teaching, research, original work and administration to which every member of the academic staff of a university should attempt throughout his academic life to conform is wholly alien to the proper concept of a university.

561. We think that in the making of appointments and in promotion this diversity of gifts is not sufficiently honoured and that published work counts for too much in comparison with other kinds of excellence. The exceptionally gifted teacher, and the man who has given his time to organisation and administration, to the running of laboratories and the development of libraries or to the welfare of students tends to suffer, when appointments and promotions are considered, in comparison with the man who has distinguished himself by publication.

562. We think the extent to which a narrow criterion of academic excellence has invaded British universities is sometimes overstated. But we are convinced that the danger exists. It can cause premature publication and also inflated publication, by which matter for articles is blown up into books. It may make persons without either the gift or any genuine urge to engage in research do so because they feel that promotion depends on it. Publication, by which a man earns a reputation in the open forum of the world's opinion, should always be regarded as an important qualification for promotion; but it should not be the only qualification. We think it right that the title and status of reader should imply distinction in research and should carry with it as a primary obligation the advancement of a subject; but other qualities should also count in election to the professoriate and in promotion to senior lectureships. We recommend that any distinctions in salary scale and status between readers and senior lecturers should be abolished, and that in promotion to the rank of senior lecturer other factors beside published work should be taken into account, particular attention being paid to distinction as a teacher.

563. We have concentrated in this section of our discussion on the universities, since it is in connexion with the universities that we have received complaints that research is fostered at the expense of teaching. But what we have said applies with equal force throughout higher education. Where the will and the capacity for original work exists it should be encouraged, and rewarded. We should deplore here, as in the universities, any artificial stimulus to research as giving status to institutions or individuals. As standards rise in the Colleges of Education and work for degrees increases in the Regional Colleges, research will naturally grow out of teaching; but it should be a natural and not a forced growth.

METHODS OF TEACHING

564. We come now to matters concerning teaching, to the communication between teacher and student. We shall not attempt to deal with teaching methods in detail since they are the subject of the investigation by Sir Edward Hale's Committee, to which we have already referred.* But there are certain general questions on which we feel bound to comment; these are closely connected with the use made of teaching resources.

565. Methods of instruction in higher education vary from the large lecture, in which one teacher may address some hundreds of students, to the old-style tutorial in which teaching is a dialogue between one teacher and one pupil based on the pupil's written work. Between these come other discussion periods of various kinds (including seminars), smaller lectures and practical work in laboratories. Although the distinction is breaking down, the tutorial system has been traditionally associated with the older universities of England and the lecture system with the newer universities and the Scottish universities. In the Training Colleges and in further education the lecture system predominates, although a considerable amount of teaching is also done in large seminars. In the Training Colleges, apart from organised teaching, there is a good deal of informal contact and discussion relating to school practice. Table 49 shows, in terms of average weekly hours in the spring term of 1962, the types of organised teaching that students receive. It illustrates the considerable differences between sectors, faculties and university groups. This table, and the discussion of methods of teaching that follows, are concerned only with students at the undergraduate level.†

* As part of the survey mentioned in paragraph 558, teachers were asked to record the time they spent in different types of teaching. Some of the results are given here; they are set out in full in Appendix Three, Part I, Section 11. Another section of the survey, concerning techniques of teaching, was designed primarily to meet the needs of the Hale Committee, and only a few of the findings are given here or in the Appendix.

† Some aspects of the instruction and supervision of postgraduate students are discussed in Chapter VIII.

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TABLE 49
Average hours of teaching per week received by full-time students
Great Britain Spring Term, 1961/2

							Hours
	Lectures	Discussion periods attended by			Practicals	Other teaching	All teaching
		10 or more students	5-9 students	1-4 students			
Universities (Undergraduates)							
Faculty							
Humanities... ..	6.8	0.7	0.8	0.8	0.6	0.4	10.1
Social studies	7.0	0.8	1.0	0.8	0.2	0.1	9.9
Science	8.3	0.3	0.2	0.5	7.8	0.3	17.4
Applied science	10.8	0.6	0.1	0.2	6.9	1.3	19.9
Medical subjects	8.0	0.8	0.3	0.2	12.1	0.2	21.6
University group							
Oxford and Cambridge	6.3	0.2	0.2	1.6	2.4	0.3	11.0
London	7.8	0.9	0.7	0.4	5.2	0.7	15.7
Larger civic	8.2	0.6	0.6	0.3	5.4	0.7	15.8
Smaller civic	7.8	0.6	0.6	0.4	3.1	0.4	12.9
Wales	8.5	0.4	0.6	0.4	5.2	0.4	15.5
Scotland	9.6	0.7	0.4	0.2	5.5	0.6	17.0
All undergraduates	8.1	0.6	0.5	0.5	4.6	0.5	14.8
Teacher training... ..	8.7	1.6	0.3	0.1	4.8	0.5	15.9
Further education							
Colleges of Advanced Technology... ..	10.9	1.2	0.5	0.1	6.7	1.8	21.2
Other (excluding art)... ..	12.4	1.2	0.4	0.1	7.0	2.1	23.2
Art	1.5	0.2	0.1	0.1	18.8	1.4	22.1

Source: Undergraduate survey, teacher training survey, further education survey. (See Appendix Two (B), Part IV)

- Notes: 1. The table does not cover undergraduate medical students taking the clinical part of the course.
2. For students in teacher training the hours shown do not include hours spent on teaching practice.

566. We have received from both university teachers and student organisations extensive complaints concerning methods of instruction. The substance of these complaints has been nearly always the same: undue reliance on lectures, often delivered with too little consideration of the needs and capacities of the audience, and insufficient personal contact. The remedy generally demanded is the adoption of what is called the 'tutorial system', though what exactly is meant by this is not always clearly defined by those who desire it.

567. By a 'tutorial system' is meant a system that ensures that the pupil comes into personal contact with his teachers, that he feels he can bring his individual difficulties and problems to them, and that his progress

is a matter of sympathetic concern to them, we are wholeheartedly in favour of a tutorial system. But we do not believe that this desirable state of affairs can only be achieved by individual tuition, every pupil enjoying one hour a week by himself with a tutor, or that it can always be best achieved by this method of teaching. The tutorial properly conducted is an arduous affair on both sides: the pupil has to take a very active part. For the great majority of students we believe it to be too exacting. They would gain more from being members of a small class of three or four in which they did not have the responsibility of making all the running. Even in the older universities of England the single-pupil tutorial has to a considerable extent given way to the double tutorial and to small classes. Less than half the tutorials given in Oxford and Cambridge are given to a single pupil. We think that for those capable of taking part in it the single-pupil tutorial gives better results than any other method of teaching. But it is costly and extremely wasteful of the teacher's time if it involves a great deal of repetition of material which all students of a subject have to learn to handle. It was invented as a means of educating a small *élite* reading for honours schools. As a method of educating large numbers of students it is impracticable and we believe undesirable.

568. Conversely, we are not in sympathy with the view that the lecture is an archaic survival from the days before printing was invented. We think that a well-planned and well-delivered series of lectures can give a sense of proportion and emphasis lacking in tutorial discussions and seminars where teaching, in following where the argument leads, may often stray into byways. It should bring to students modifications of what they find in their textbooks, suggest wider reading, and, when given by lecturers in touch with recent developments, be a source of stimulus and inspiration. We are particularly thinking here of lectures to large audiences in which a genuinely synoptic view of a subject is given. Lectures of this kind which lay down principles and survey a subject widely are particularly valuable for first-year students. Attendance at lectures gives them a necessary frame to a week's work, makes them feel a part of a community of learning, and leads to wider intellectual contact with their fellows than membership of small classes alone can give.

569. We are in favour of diversity and believe that in a well organised course of instruction different types of teaching should be combined. We are struck by the evidence, summarised in Table 49, that a high proportion of instruction is received through lectures. On the whole we think that there is little virtue in formal lectures delivered to very small audiences.* A lecture should be something of an occasion and, except in large universities where in a big lecture list there is room for the highly specialised lecture which only a few genuine enthusiasts will attend, time spent in preparing courses of lectures for small audiences would be better spent in giving more classes and in regular and systematic correction of pupils'

* A half of all university lectures (including those by heads of departments) are attended by under 20 students, and of course the average size of lecture audience is considerably smaller in small institutions than in large ones. See Appendix Three, Part I, Section 11 for a discussion of teaching arrangements in universities.

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own work.* We are impressed by the evidence that students do little written work during the term and get too little detailed criticism of what they do submit.*

570. There are two elements of a tutorial system that we think should be universally established. First, we commend the practice obtaining in many universities of assigning a pupil at entry to a tutor or supervisor of his studies, whom he can consult at any time over his work and, if he wishes, his personal affairs. But we have received evidence that suggests that in some faculties such assignment is a formality and the student actually sees little of his tutor after an initial interview.† We consider that regular personal guidance of individual students is one of the most important duties of a university teacher. Second we would place the regular and systematic setting and returning of written work, as providing the student with a focus of attention in arranging his studies. In the educational revolution that we are living through, there is a special and mounting problem of large numbers of young people coming up to the university without a background of higher education and culture in their homes. They need to be given a sense of security and confidence in what is to many of them a disconcertingly strange and impersonal world. They also need constant practice and adequate training in the art of communication, both oral and written. Properly guided discussion and help in the orderly and lucid presentation of their work should balance lectures in which the subject is presented magisterially.

571. Lectures and discussion periods need to be better geared together, and there should be discussion of material handled in lectures. It should also be recognised that teachers differ in their powers and that more attention should be paid to their diversity. There are some first class lecturers who have little gift for intimate teaching and some who are first class in conducting discussion are poor lecturers. The present emphasis on the lecture as a means of instruction is, we believe, stultifying the gifts of some teachers. There are teachers who have a special gift for establishing personal relations with students and might well be given a larger share than others in the work of personal supervision and a smaller share of formal teaching.

572. Some of our witnesses have urged that every university teacher should have a period of instruction in teaching techniques before he takes up his duties. Our survey showed that many university teachers themselves agree that something of this kind is desirable: 58 per cent. considered

* Our survey showed, for example, that at Oxford and Cambridge 90 per cent. of undergraduates prepare written work at least once a week. At all other universities taken together the proportion who do so is just over a half. In arts 15 per cent., and in science and applied science 25 per cent., prepare written work less often than once a fortnight (see Appendix Two (B), Part IV).

† The evidence from our survey confirmed this. It showed, for example, that although 72 per cent. of home undergraduates are allocated to a supervisor to advise them on their work, only 58 per cent. discuss their work with a supervisor once, or more than once, a term; the proportion of students in the humanities who do so is 63 per cent. Of all first year undergraduates 67 per cent. discuss their work with a supervisor once, or more than once, a term (see Appendix Two (B), Part IV).

that newly-appointed teachers should receive 'some form of organised instruction or guidance on how to teach'; only 17 per cent. had ever received any such instruction or guidance.* We recommend that all newly-appointed junior teachers should have organised opportunity to acquaint themselves with the techniques both of lecturing and of conducting small group discussions.

573. In this section also we have concentrated on the universities, because it is in connexion with the universities that we have received more evidence and more complaints. But the need of students for personal supervision, adequate opportunities for discussion, and training in the arts of oral and written exposition is the same in all sectors of higher education. In the Training Colleges and the Scottish Colleges of Education this need is recognised. In further education, our survey showed that only 40 per cent. of full-time students in science and technology discuss their work with a supervisor once, or more than once, a term (compared with 57 per cent. of undergraduates in such faculties). We hope that what we have said in regard to the universities will be taken as having wider application.

EXAMINATIONS

574. We have not thought it to be within our terms of reference to enter upon the merits or demerits of the various examination systems of the universities or those which affect full-time students in other institutions of higher education. To inquire whether these systems make possible a just assessment of the ability of candidates would involve intricate research and would raise complex questions beyond our competence to investigate. We are aware that there is a good deal of current discussion of these matters. We recommend that the universities, and their Schools of Education, should consult together to ensure that they have the benefit of each other's experience and of any experiments and studies that are being made. In further education we hope that, under the system recommended in Chapter X, the Council for National Academic Awards, in the course of considering the examination arrangements for its degrees, will help to promote an interchange of views and information between the colleges.

WASTAGE

575. The crudest criterion of the effectiveness of teaching in an institution of higher education is the amount of what is called 'wastage'. This term is generally used to describe all those who enter an institution in a given year and leave without the degree or other qualification for which they enrolled. It is perhaps an unfortunate term, for it suggests that those who fail to complete their courses have gained nothing, which is rarely true. Some wastage is inevitable in any system. There will always be a certain number of students who discover that they have made a wrong choice, others who prove unable to develop intellectually much beyond the point they had reached on entry and some who withdraw or fail because of ill-health or other personal reasons. Inadequate communication between

* See Appendix Three, Part I, Section 12.

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teacher and student is also a factor in the failure of some students to obtain the qualification for which they are studying.

576. In general in this country there is nothing approaching the high wastage rates that exist in some other systems. The general average in British universities—at present 14 per cent.—is of an order of magnitude totally different from the rate of 40-50 per cent. that is the average in universities in France and in the United States of America, to name only two examples. The difference is of course partly to be accounted for by the differences in ease of access. An average wastage rate of 14 per cent. in universities as selective as ours is nothing to boast of. Wastage in any type of institution of higher education calls for continuing attention; the aim should be not merely to keep the percentage who fail low, but to ensure that all students are enabled to develop their abilities to the full.

577. The available evidence on wastage in higher education in this country will be found in Appendix Two (A). There, and in discussion of wastage in this chapter, the Colleges of Advanced Technology have been grouped with institutions of further education, since hitherto the Colleges of Advanced Technology have shared the traditions of the further education system.

Universities

578. The overall wastage rate for students (other than those studying medical subjects) who entered universities in 1957 was 14 per cent.; the figure for entrants in 1955 was the same, and for entrants in 1952 rather higher. Within this total, something like 82 per cent. of wastage is classified as being due to 'academic reasons', and this includes those who fail one or other examination during or at the end of the course, as well as those who withdraw because of academic difficulties; the remainder are students who withdraw on grounds of illness, financial difficulties, and so forth. Clearly these categories are arbitrary and can give no insight into the weight to be attached to lack of intellectual ability, lack of application, defective teaching, difficulties of psychological adjustment to university life, to extraneous personal troubles or other factors.

579. One thing, however, stands out from the statistics: the striking difference in wastage rates between different universities and different faculties in the same university. Table 50 summarises these for the three main faculties, though without identifying universities by name. The high rate in technology is particularly noticeable. This may be due to the fact that in technology, compared with other subjects, students move on to unfamiliar ground when they move from school to university as well as to the fact that technology at present attracts less than its share of able students. Differences between universities are marked. In the arts faculties wastage rates range from 3 per cent. to 20 per cent.; in science from 3 per cent. to 28 per cent.; and in technology from 5 per cent. to 36 per cent.

TABLE 50
Percentage of undergraduates entering in 1957
who left without success
Great Britain

			Percentage		
University:			Arts	Science	Technology
A	...	...	20	21	22
B	...	...	16	23	36
C	...	...	3	3	5
D	...	...	14	12	19
E	...	...	14	17	18
F	...	...	11	9	32
G	...	...	18	19	28
H	...	...	11	19	.
I	...	...	14	14	22
J	...	...	20	22	.
K	...	...	17	12	24
L	...	...	15	22	21
M	...	...	16	12	20
N	...	...	8	12	17
O	...	...	18	19	28
P	...	...	.	23	34
Q	...	...	10	24	.
R	...	...	11	13	22
S	...	...	11	20	9
T	...	...	11	9	14
U	...	...	8	28	.
V	...	...	9	17	.
W	...	...	19	26	.
X	...	...	8	4	1
All universities ...			12	15	21

Source: University Grants Committee

- Notes: 1. The order in which universities are shown was randomly determined.
2. The table shows the proportion of those who entered in 1957 to read for a first degree who had by autumn 1961 left without success. Most of the remainder had been successful, but a few were still studying, the proportion being 2 per cent. in arts, 2 per cent. in science and 7 per cent. in technology.

580. The differences in wastage rates shown in this table are not explicable solely in terms of the quality of students admitted or in terms of the way they are taught. It is difficult to avoid the presumption that an important factor affecting wastage is that in some faculties there is an approximate percentage of students whom it has become customary to fail. This supposition is borne out by the fact that wastage rates have remained nearly constant in faculties whose entrance standards are known to have risen. In so far as there are grounds for this presumption they should be removed. It is essential that a student should feel confident that his success or failure depends only upon his ability and attainment.

581. It should be an essential part of the responsibility of any university department towards its students to investigate this problem carefully, both in regard to the general level of wastage over a period of years and in regard to the individual students who fail in any given year to complete a

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course successfully. Such full and continuous inquiry, as part of the university's proper concern for the progress of all students, can scarcely fail to yield clues as to the kind of action that would reduce wastage substantially in faculties where it is at present high.

Colleges for the education and training of teachers

582. In the Training Colleges the average wastage rate among non-graduates is 7 per cent. In the Scottish Colleges of Education the average wastage rate among non-graduate students is much the same. More than one reason can be advanced for the position being apparently so much more satisfactory than in the universities. On the one hand it might be said that the standard set is low. Less questionably, it can be argued that the students are committed to a profession and have a sense of purpose in their studies which is lacking in many university students, and that the close contact between staff and students prevailing in all the colleges leads to weaker students receiving more help. We would add that the sense of the urgent need to provide teachers for the nation's schools which rightly permeates the Training Colleges is another motive that impels the teacher in a Training College to make every effort to help weaker students to qualify.

Colleges of Advanced Technology and institutions of further education

583. The tradition in further education has hitherto been that any young person with the relevant minimum entry qualifications can be admitted to embark on a course of study; this is a special merit of the system and we think it should be preserved. As applied to further education, therefore, wastage rates among full-time students need to be viewed in a rather different light from wastage elsewhere in higher education. As our survey showed, they are much higher than in universities and Training Colleges.* Among the full-time students working for the Diploma in Technology in 1960/1 the wastage rate was 37 per cent. Among those reading for a degree of the University of London the rate was 62 per cent.; the figures for Colleges of Advanced Technology were much the same as for Regional Colleges. Among students taking Associateship courses of the senior Scottish Central Institutions the rate was 54 per cent. These figures are not entirely comparable with the figures for university wastage, since they cannot take into account success in other courses to which students in further education may transfer if they find the course for an honours degree, a Diploma in Technology or an Associateship too exacting. Moreover, they mask considerable variations both between the institutions in a group much less homogeneous than the universities and between categories of students within institutions. Thus in courses for the Diploma in Technology, the wastage among students selected by their employers to take a course was considerably lower than wastage among college-based students (about 34 per cent. as compared with 47 per cent.). Other factors must also be taken into account. Courses for the Diploma in Technology, an award of honours degree standard, were an entirely new

*An explanation of the method of computation will be found in Appendix Two (A), Part IV.

venture started only in 1956. And as we have explained, a high wastage rate for external degree courses is not unexpected: even those colleges of further education that can enter their students for internal London degrees have limited opportunities to modify syllabuses to meet the needs of their students. Our survey showed that the wastage of home students taking degree courses was about 55 per cent., and lower than that of overseas students. Moreover these students entered three to five years ago, when further education was getting a smaller proportion of students with good qualifications at the Advanced level of the General Certificate of Education than today.

584. Yet despite this we see no reason why the present rate of failure in further education should continue. It may well be that the burden imposed on a considerable number of students at present is greater than they can sustain, and that teaching in some colleges is not sufficiently geared to help the student to his goal. Experience will lead to improvement. In any case we would expect the wastage rate to diminish with the rise in academic standards among entrants, and the introduction of a wider range of courses, with pass as well as honours courses following a period of common studies. Further, if the colleges have a freer hand to devise their own curricula they should, if proper attention is paid to teaching methods, achieve a much higher rate of success among their students than they do now. Doubtless there will be a good deal of competition for places in the Colleges of Advanced Technology and entry will be selective. But in other colleges whose doors remain open to all with the minimum requirements for any particular course, as we think they should, more wastage than among the highly selected students in universities is almost certain to occur, and should be accepted without disquiet.

SOCIAL INTERCOURSE

585. Institutions of higher education are not merely places of instruction. They are communities. We are thus led naturally to consideration of the best means of promoting the social life of universities and colleges. The so-called wastage rate is unusually low in Oxford and Cambridge, although the student/staff ratio there is comparatively unfavourable and a higher proportion of the staff is concerned purely with research. A number of factors contribute to this; among them is undoubtedly the comparative ease with which contact between senior and junior members of the university can take place outside teaching hours. This is one of the great merits of the college system; it unites senior and junior members in a common way of life, and makes the teacher's study a natural place for casual and informal meeting as well as for teaching. The fact that the colleges own many houses in the near neighbourhood makes it possible for a non-resident tutor to dine in college and be available outside 'office hours' without feeling he is neglecting his wife and family, and he can entertain his students without imposing undue burdens on his wife.

586. We consider that every effort should be made to provide opportunities for such contact between staff and students in other institutions. We do not

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wish to see closed academic communities with staff and students forming a kind of world within the world. But, in order that staff and students can meet readily, institutions should ensure that a sufficient proportion of the teaching staff can live at a reasonable distance from their work and do not have to spend so much time in travel that they feel reluctant to return in the evening. Facilities should be provided by the institution so that teachers can not only meet pupils but also entertain them. It is difficult for teachers and their wives to arrange at home for the amount of entertaining of pupils, colleagues and visitors from other universities and from abroad that is desirable. There should be places provided by the institution where they can offer suitable hospitality.

LIVING ACCOMMODATION FOR STUDENTS

587. The promotion of social intercourse between teachers and students is desirable. When we turn to living accommodation for students we enter the realm of necessity. In 1961/2, as Table 51 shows, 28 per cent. of students in the universities, 70 per cent. of students in Training Colleges, 22 per cent. of students in Scottish Colleges of Education and less than 10 per cent. of students in further education were living in accommodation associated with the institution they were attending.*

TABLE 51
Accommodation of students in full-time higher education
Great Britain 1961/2

					Percentage
	College, hall or hostel	Home	Lodgings	All students	Numbers (=100%)
Universities:					
Oxford and Cambridge ...	53	2	45	100	17,800
London ...	20	26	54	100	22,600
Larger civic ...	22	17	61	100	35,100
Smaller civic ...	50	5	45	100	10,900
Wales ...	33	14	53	100	7,300
Scotland ...	13	47	40	100	19,400
All universities ...	28	20	52	100	113,100
Colleges of Advanced Technology	12	41	47	100	8,900
Colleges of Education:					
England and Wales ...	70	15	15	100	36,500
Scotland ...	22	53	25	100	5,500
Further Education:					
England and Wales ...	3	48	49	100	23,800
Scotland ...	11	51	38	100	4,500
All students ...	32	25	43	100	192,300

Source: See Appendix Two (A), Part V

588. The proportion of university students provided with residence has remained roughly constant since before the war. The proportion of those living at home has fallen by over a half (from 42 per cent. to 20 per cent.) and is still about 1 per cent. lower each year than the year before. The proportion in lodgings has therefore risen sharply (from 33 per cent. to

* A fuller presentation of the facts on residence will be found in Appendix Two (A), Part V, together with evidence on the advantages and costs of different types of residence.

52 per cent.), and there is every sign that in most places the limit of available lodgings has now been reached. Indeed, if we consider the nature of some of the lodgings in which circumstances oblige students to live, the distances that they are forced to travel to their work, the lack of privacy—there are cases where three students share one study-bedroom—and the absence of any kind of supervision, it can be said that the limit has already been passed. As the general level of prosperity rises, and as more married women go out to work, the number of women willing to earn money by letting lodgings is likely to decline still further. Even without any expansion of student numbers the amount of housing provided by the universities would need to rise.

589. The expansion we are recommending will make a very great increase in housing provided by universities imperative. We think that, both on educational grounds and on grounds of necessity, provision should be made for a number equivalent to two thirds of the additional students who will come into the universities to live in accommodation of one kind or another provided by the university.

590. What we have to recommend for 1980 must not, however, be taken to mean that provision of this accommodation can be spread evenly over the intervening years. It is clear to us that the gravest of all the problems for the universities in the next five years may well be the problem of providing places where students can live. A great expansion of university residence is needed at once. We shall refer to this again in Chapter XVIII.

591. Halls of residence in the traditional sense, where some teachers also live, and where teachers and students dine together, have common rooms and other social facilities, are expensive and they are not necessarily desirable for all students. Halls of residence provide a sense of real community; but to some students they may seem unduly restrictive. The two things a student requires throughout his university career are the possibility of privacy—a room of his own, however modest—and facilities for social life. Ample common rooms, reading rooms, rooms for debate and play-reading, facilities for games, music and acting, and good refectories, open in the evening as well as in the middle of the day, combined with blocks of study-bedrooms or self-contained student flats, may suit the tastes and needs of many students better than the traditional hall of residence and be considerably cheaper to provide. Here again we think there should be diversity, as far as resources make this possible. For many, a year in a hall of residence is the best introduction to adult social life; for others, the greater freedom of the bed-sittingroom or flatlet may be more appropriate.

592. The high proportion of resident students in the Training Colleges in England and Wales is at least partly explained by the fact that many of the colleges are in rural or semi-rural settings and in areas where lodgings would not be available. The colleges' tradition of close contact between staff and students is also linked with their largely residential nature. In the years ahead, as the increased numbers of older women whom it is hoped to attract into the teaching profession come into the Colleges of Education,

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it is possible that the percentage of students requiring residence in the colleges may tend to fall. But the policy of concentrating the major expansion of the colleges on those in the neighbourhood of existing universities would bring the large numbers of younger students in these colleges into direct competition for lodgings with university students unless the largely residential character of the colleges were preserved. We therefore think that the proportion of students resident in these colleges will have to remain as at present, and we think that the proportion of students resident in the Scottish colleges will have to rise.

593. As the Regional Colleges develop along the lines we recommend they, and to some extent also the Area Colleges, will draw less on their immediate neighbourhood for their students. Nor can it be assumed that the students in them who have to live away from home will be able to find lodgings. Here again, the need for more residential accommodation is apparent.

594. It is therefore clear that, if greatly increased numbers of young people are to receive higher education, the majority of additional students in all sectors will have to be housed in accommodation provided by or associated with the institutions they are attending. It would be unrealistic to suppose that more than a third of these additional students could live either at home or in lodgings. We therefore recommend that residential accommodation be provided for a number equivalent to two thirds of the additional students coming into all sectors of higher education. Under this policy the overall proportion in residence should rise from 32 per cent. in 1961/2, to 49 per cent. in 1973/4 and to 54 per cent. in 1980/1. Table 52 shows the proportion of students in the various sectors who should be in residence by 1980. Even so the number of students in lodgings will have to be at least 40 per cent. higher in 1980/1 than in 1961/2 and may well have to rise by 100 per cent.*

TABLE 52
Percentage of full-time students resident in college, hall or hostel
Great Britain 1961/2 and 1980/1

	1961/2	1980/1
Universities	28	} 53
Colleges of Advanced Technology...	12	
Colleges of Education		
England and Wales	70	67
Scotland	22	51
Further Education		
England and Wales	3	41
Scotland	11	43
All students	32	54

Source: See Appendix Two (A), Part V

Note: In the English and Welsh Training Colleges the proportion of students in residence fell from 70 per cent. in 1961/2 to 67 per cent. in 1962/3. In estimating the figure for 1980/1, the 1962/3 figure has been used as the base.

* The calculation of 40 per cent. is based on the assumption that the proportion of students living at home remains as it was in 1961/2. There are, however, grounds for expecting it to fall. For a discussion of other possible assumptions see Appendix Two (A), Part V.

595. Residential provision on the scale that we are compelled by the circumstances to recommend means that over 225,000 additional residential places of one kind or another will be needed by 1980. This will make very heavy demands on public investment resources. We shall discuss some financial and economic aspects of this problem in Chapter XIV. Here we would only emphasise that, while it will be essential to lighten as far as possible the burden on public investment resources, and while it will be imperative to ensure that full and economic use is made of these residential places in the vacations as well as in term-time, the need to make this provision seems to us inescapable. If the expansion of higher education that we recommend is to be achieved, students must be found somewhere to live.

VACATIONS

596. A last and most important point concerns the way in which the student spends his vacations. The investigations of the Hale Committee into the use made by students of the summer vacation have shown that, in general, little work is done that is strictly relevant to the courses being pursued and that, on their return to the university, a substantial proportion of undergraduates are subjected to no kind of check or inquiry as to whether they have used the vacation for any purpose connected with their studies.* The remedy sometimes suggested is that the student should be taught, or at least be under supervision, for a greater part of the year, either by lengthening the present terms or by including a fourth term in the long vacation. But this would mean diversion of the teachers from their proper vacation work of research, reading, preparation and examining.

597. Students should be expected to spend a substantial part of their vacations on work related to their fields of study. Guidance on how best to use the vacations should be given by the institutions in which they are studying, and evidence that the time has been used to good purpose should be required. Grants should be assessed on the assumption that students will be occupied with their studies during ten months of the year. Students, and in particular students of arts subjects, need access to libraries and, since the provision of suitable libraries varies greatly in different parts of the country, residential provision should be available. But strictly academic work will not be the most appropriate way for some students to spend all ten months of the year. Different activities are appropriate to different subjects. The freedom of movement which the vacations bring allows the laboratory work of the biologist and the student of the earth sciences to extend to practical work in a wider setting or to observations in a particular environment. The modern language student can deepen his understanding of the institutions and cultural heritage of a foreign country while he is increasing his linguistic skill. Those whose careers will lie in the scientific and technological side of industry or government service can benefit greatly from a period in a related industry or research establishment through one of the well-established vacation training schemes. Such arrangements, and the practical work that is a compulsory part of many courses in the social sciences, have something in common with the arrangements in sandwich courses.

* *The Use of Vacations by Students*, Interim report of the Committee on University Teaching Methods (H.M.S.O., May 1963).

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PRIVILEGE AND OBLIGATION

598. In this age and country students are a privileged population; they have exceptional opportunities provided for them by the labour of the community. They are under the obligation to make the best of their three or four years and to remember, as Milton did, that 'Ease and leisure is given thee for thy retired thoughts out of other men's sweat'. But all those engaged in higher education, both teachers and taught, are privileged persons and we would not wish to end this chapter by suggesting that the privilege is all on one side. The university teacher in particular has a unique freedom in arranging his work and in following his own bent. On paper the hours of work demanded of him are not heavy. He does not have to submit to office hours and has a wide liberty in the interpretation of his professional duties. Such freedom is the condition of the intellectual life. It brings with it great responsibility. Public opinion will not support the cost of higher education unless teachers are actuated by a high sense of professional obligation and students are actuated by a corresponding sense of the obligation to work.

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The financial and economic aspects of our proposals

599. Up to this point both our analysis and our recommendations have been concerned either with objectives or methods. We have discussed what we want of higher education and various ways of achieving it. We have not dealt with the economic aspects of higher education or with the financial problems involved. It is to these problems that we must now turn.

THE COST OF HIGHER EDUCATION

600. Our first inquiry must relate to costs. How much does higher education cost today? And how much will it cost if our recommendations are adopted?

601. In the last analysis, the real cost of anything is what has to be foregone in order to have it. Hence, the real cost of higher education is what could have been produced or enjoyed had the means involved—the use of the buildings and materials, the services of the staff and students—been available for other purposes. As will be seen at once, in detail this is a very complex conception; and its measurement involves many difficulties.* But the main idea is simple. The ultimate cost of higher education is what is foregone by devoting resources, including the potential services of the students, to this purpose rather than to something else; and, as we shall see later in this chapter in considering some quite practical questions, it is important to bear this in mind.

602. For most purposes in this country, however, where some 90 per cent. of expenditure on teaching, research and administration is met from public funds, it is cost in terms of public expenditure, both current and capital, that is relevant; and fortunately this is much easier to measure. In 1962/3† it is estimated that in this sense higher education in Great Britain, on the definition set out in paragraph 6 of Chapter I, and including part-time as well as full-time study, cost £219 million. This includes the outlays of central and local government in respect of teaching and other services, rent and maintenance of buildings, apparatus and materials, student grants and building development. Table 53 illustrates the enormous increase in public expenditure since before the war.

TABLE 53
Public expenditure on higher education
Great Britain 1937/8 to 1962/3

						£ million	
						Actual expenditure	Expenditure at 1962/3 prices
1937/38	...	...	...	...	...	7	26
1954/55	...	...	...	...	...	63	90
1959/60	...	...	...	...	...	130	149
1960/61	...	...	...	...	...	146	161
1962/63 (estimated)	...	...	...	...	...	219	219

Source: See Appendix Four, Part IV, Tables 14 and 16

* In Appendix Four, Annex E the problems are briefly described and an attempt is made to express the concepts in quantitative terms.
†Here and elsewhere in this chapter we use financial years.

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603. This central figure of charges on public funds may be split into current and capital expenditure. In 1962/3 current public expenditure on higher education in Great Britain was £162 million and capital expenditure £57 million. These totals, as we have given them, do not altogether conform to the logical requirements of the subject, since from one point of view, which is developed later and which is quite germane to our subject, students' grants are to be regarded as capital investment, whereas here they are included with current expenditure. Nevertheless, this conforms with administrative practice, and for that reason we have treated them as current expenditure here.

604. More important for many purposes is the split between sectors within higher education as a whole. Table 54 distinguishes between expenditure on universities, teacher training and further education. Like Table 53, it includes expenditure both on full-time and on part-time students. If the part-time element is excluded it is estimated that, of the total expenditure of £219 million, some £206 million is attributable to full-time students: this is the figure we shall need in making comparisons with the expenditure implied by our recommendations for the future.

TABLE 54
Public expenditure on higher education: by sector
Great Britain 1962/3 (estimated)

	£ million		
	Current	Capital	Total
Universities	96	33	129
Teacher training	31	14	45
Advanced further education	35	10	45
All higher education	162	57	219

Source: See Appendix Four, Part IV, Table 4
Note: In the analysis of costs in this chapter and Appendix Four, Colleges of Advanced Technology have been aggregated with advanced further education.

605. On the basis of these aggregates, an estimate of the average cost to public funds of education in each of these main categories can be derived by dividing the expenditure in each sector on current account* by the number of students in that sector. The result is shown in Table 55.

TABLE 55
Current public expenditure per 'full-time equivalent' student
Great Britain 1962/3 (estimated)

	£
Universities	777
Teacher training	576
Advanced further education	605
All higher education	697

Source: See Appendix Four, Part IV, Table 21
Note: 1. The table excludes loan charges.
2. The number of part-time students is reduced to an equivalent number of full-time students by factors given in Appendix Four, Part IV; the resulting total is then added to the number of full-time students.

* Capital expenditure has to be excluded in that it relates to future students.

606. Such averages, however, need much qualification. One of the main reasons, for instance, why the cost of university education appears disproportionately high is that the amount of research done in universities is greater than in the other institutions.

607. Moreover, costs vary considerably between faculties. On the same basis as that of the estimates given in Table 55, the average public current expenditure in 1962/3 per university student (excluding loan charges) was £568 in arts, £774 in applied science, £902 in pure science and £1,061 in medical subjects. The difference in the subjects studied, and their distribution, in further education and in Training Colleges is one of the reasons why expenditure is higher in further education.

608. The figures in the last paragraph are averages covering both undergraduate and postgraduate students. We have not been able to make a satisfactory quantitative comparison here: the problems are very formidable. But it is clear that the latter are more expensive than the former, if only because students are taught by senior—and hence more highly paid—staff, and because of the library and laboratory equipment involved.

The cost of expansion

609. We must now turn our attention to the implications as regards costs of the expansion that we have recommended in earlier chapters. What would be the additional expense involved by the increase of the population in full-time higher education from 216,000 at present to some 560,000 in 1980/1?

610. In attempting an estimate of this sort it is necessary to make specific assumptions concerning the general increment of costs and prices. Accordingly we assume, first, a constant overall price level, so that incomes in general rise only with increases in productivity. Secondly, we assume an average increase in productivity of $3\frac{1}{2}$ per cent. per annum.* We are not predicting that these assumptions will be fulfilled; we adopt them simply as a suitable basis for calculation.

611. The cost of the increase in numbers will obviously depend upon their distribution between different types of institutions and different types of courses. It will also depend upon the proportion in residential accommodation. For purposes of this calculation we assume the distribution and proportions proposed in Chapters XI and XIII.

612. On these assumptions, and on the assumption that public expenditure in this sector will account for a constant proportion of all expenditure, we estimate that total public expenditure on full-time higher education will increase from £206 million in 1962/3 to £742 million in 1980/1. Needless to say, such estimates have an appearance of precision that is false, but they indicate the orders of magnitude involved.†

613. The increase may be analysed into various constituents, which have some significance for considerations of policy. Leaving capital expenditure

* Because of the growth in the working population, this corresponds at the present time to a growth in the gross national product of 4 per cent. per annum.

† Estimates for intervening years are given in Appendix Four, Annex F. It should be noted that our estimates make no allowance for any additional cost that may arise from improved standards of provision—in default of any method of estimation it is assumed that standards of provision remain unchanged.

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aside for the moment, we may first single out the increase in current expenditure that would automatically follow from the increase in the number of students, if we assumed present costs per head to remain constant. As Table 56 shows, the expansion recommended would involve an additional expenditure of £244 million above the total of £206 million in 1962/3.

614. Secondly, it should be noted that changes in the pattern of institutions and in the balance between different areas of study will tend to reduce the cost, because of the decline in the proportion of medical students in the total student population.

615. There is, thirdly, a small increase in current expenditure arising from our recommendation that two thirds of the additional full-time students between new and 1980/1 should be in residence: as we shall see presently, it is on capital expenditure that this recommendation has its greatest effect.

616. Next comes the increase in current expenditure due to the assumed growth in real incomes. Our assumption here was of incomes in general rising *pari passu* with productivity. It follows therefore that, if productivity increases, the cost of salaries, wages and awards in higher education will also rise—although, as we shall point out again, the capacity to pay will also have increased. On the assumption of an increase in productivity of 3½ per cent. per annum, £236 million is to be attributed to this factor.

TABLE 56
Components of the estimated increase in public expenditure on full-time higher education between 1962/3 and 1980/1 (capital and current)
Great Britain

	Current expenditure			Capital expenditure	Total expenditure
	Teaching, research, etc.	Student maintenance	Loan charges		
Expenditure in 1962/3	98	46	5	57	206
Additional capital expenditure in 1980/1	.	.	.	56	56
Additional current expenditure in 1980/1:					
For increased number of students	159	76	9	.	244
For changed proportions in institutions and faculties	-6	1	—	.	-5
For increased proportion in residence	.	3	2	.	5
Total provision for expansion	153	80	11		244
Expenditure in 1980/1 (with no allowance for growth in real incomes)	251	126	16	113	506
Allowance for growth in real incomes	141	95	.		236
Expenditure in 1980/1	392	221	16	113	742

Source: See Appendix Four, Part IV, Table 23

Note: 1. Expenditure in both 1962/3 and 1980/1 relates to full-time students (see paragraph 604).
2. Capital expenditure in 1980/1 is for expansion after 1980/1 (see paragraph 617).

Financial and economic aspects

617. Capital expenditure in 1980/1 will be incurred to provide places needed in the years after 1980/1, and the estimate shown in Table 56 is based on our tentative projection of the need for places in the 1980's. In considering the effect of our main recommendations on capital expenditure, it is more relevant to take account of the total expenditure in the period up to 1980/1. We estimate that total capital expenditure from public funds for the provision of places and residence for full-time students, on the basis of our recommendations and at constant prices, will be about £1,420 million over the period of eighteen years from April, 1963 to March, 1981 (see Table 57). This is an average expenditure of £79 million a year, compared with the provisional figure of £57 million in the year 1962/3. About £280 million of the total of £1,420 million will be for the replacement of existing buildings. Of the rest, about £910 million arises directly from the increased number of students, and about £40 million from the increase in the proportions taking more expensive subjects of study. Nearly £190 million, or 17 per cent. of the total bill for new provision, is attributable to residential accommodation.

TABLE 57
Components of total public capital expenditure on full-time higher education
from 1963/4 to 1980/1 inclusive
Great Britain

	£ million		
	New places	New residence	Total
Increased number of students	731	180	911
Changed proportions in institutions and faculties	34	7	41
Increased proportion in residence	.	188	188
Total provision for expansion	765	375	1,140
Replacement of existing buildings	.	.	280
Total capital expenditure	.	.	1,420

Source: See Appendix Four, Part IV, Table 24

618. Of the elements in the increased cost shown in Tables 56 and 57, the growth of real incomes clearly follows from our assumption regarding the increase in productivity and is, for purposes of this analysis, independent of policy regarding higher education. The other elements, however, are clearly the consequence of our recommendations regarding the number of places to be provided, their proportionate division between different types of institutions and the amount of residence; and as such they must be recognised to be parts of a coherent plan. It would, for example, be possible to reduce costs by decreasing the proportion of students taking courses in science and technology. It would also be possible to reduce costs by providing proportionately less places in universities and more in other institutions. But in our view these possibilities should not be

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considered as genuine alternatives. We should need to be convinced of far greater economic stringency than we believe probable before we were willing to adopt a pattern different from that which we have proposed.

619. As regards residence, it is clear that the increased proportion recommended involves a substantial increase in capital outlay. Although it is futile to suppose that the expansion of numbers contemplated would be possible without the proportionate increase of residential accommodation that we recommend in Chapter XIII, the situation may well justify further investigation of the methods and costs of providing residence and perhaps of the location of new developments. But it would be wrong to suppose that all our proposals can be carried out for much less than the total sums we have mentioned.

EDUCATION AS AN INVESTMENT

620. The last two tables show big sums. Can the country afford them? Can it afford the still bigger sum representing not only the cost to the public purse but also all the other sacrifices involved by devoting resources to higher education on this scale rather than to other purposes?

621. In discussing this question, the first approach is to consider this expenditure as a form of investment. To devote resources to the training of young people may be, *au fond*, as much entitled to be considered a process of investment as devoting resources to directly productive capital goods. Judged solely by the test of future productivity, a community that neglects education is as imprudent as a community that neglects material accumulation. The classical economists, great supporters of education, had precisely this consideration in mind when they invented the phrase 'human capital'. And, provided we always remember that the goal is not productivity as such but the good life that productivity makes possible, this mode of approach is very helpful.

622. Unfortunately—or at least unfortunately for our present purposes—the increase in productivity arising from an increase in educational expenditure does not lend itself to easy measurement. It is comparatively easy to apply commercial measurements to private investments of this kind.* A parent considering the cost of educating a promising child to be, let us say, a lawyer may contrast the expense over the years of training with the probable yield estimated in terms of average income in that profession for an average expectation of life; and then, by the application of the usual tables, discover how the return is related to the return on some spread of commercial investments not liable to be undermined by a decline in the value of money. There can be little doubt that, before the war, the return on such investment tended to be thoroughly worthwhile for the people able to afford it.

623. When, however, one is considering the return on a substantial increase of investment of this kind, and particularly when considering it from the national point of view rather than from the point of view of the

* The issues are discussed in Appendix Four, Part III.

individual, two major difficulties preclude precise estimation and tend to vitiate arguments based upon attempts in this direction.

624. In the first place, there is no means of measuring the rate of return on the additional expenditure. It may be perfectly true that, at present rates of investment in many forms of higher education, the earnings differentials reveal yields which compare well with returns (measured in the same way) on other forms of investment. But, with changes in the relative supplies of various kinds of educated talent, there may be reason to expect changes in relative rates of remuneration. Yet there is no means of estimating how great these changes will be. There are some who think that, by the time the stock of trained talent has reached the dimensions described in Chapter VI, returns will plunge pretty steeply. Others take the view that this is unlikely. The fact is that no one knows.

625. But, beyond this, there is a much more fundamental difficulty. The return on education, even if it be considered solely in terms of productivity, is not something that can be estimated completely in terms of the return to individuals and of differential earnings. There is a further return in the shape of general adaptability and increased capacity for technological advance which, in the last analysis, is probably more important than what is measured within the system of relative prices. Education, in short, furnishes perhaps the most conspicuous example of the importance in social analysis of the difference between what economists call the 'private' and the 'social' net product of investment. It creates the milieu in which the day-to-day calculus of the price system has to operate. The difference, as regards economic potential, between a tribe of savages and a civilised community depends much more on education than on material equipment. If a series of nuclear explosions were to wipe out the material equipment of the world but the educated citizens survived, it need not be long before former standards were reconstituted; but if it destroyed the educated citizens, even though it left the buildings and machines intact, a period longer than the Dark Ages might elapse before the former position was restored. Any attempt, therefore, to confine the conception of the return on educational investment to that which can be measured by earnings differentials is bound to be incomplete and runs the danger of being seriously misleading. It is just not true that the total return on investment in education is measured adequately by the same yardstick as investment in coal or electricity. For, although there may be some 'external' factors to be taken into account in the consideration of such material investments—the provision of employment for an ageing and immobile local population, for instance—it is the 'internal' return here that chiefly counts. With education, the 'external' return may well be of overriding importance. If investment in higher education were seriously contracted, there would be a danger of a loss to the economy far greater than the measurable loss of the sum of the individual investments concerned.

626. The above argument is couched in terms of education in general. But there is no reason to suppose that it is any less cogent in relation to the

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greater part of the field of higher education. Quite apart from the fact that education at the earlier stages depends essentially on the supply of teachers, which depends on the existence of higher education, it is probably just at the higher level that the external effects most relevant to growth are of the greatest consequence. The capacity for systematic invention, the capacity readily to perceive and apply the results of scientific progress, and the capacity for leadership both in the fields of organisation and in the transmission and the sifting of ideas—such capacities, if they do not come solely from education at the higher stages, certainly derive in a large measure from the existence of a sufficient proportion of persons educated to this level and of institutions devoted to higher education and research. It is not possible to demonstrate this exactly by recourse to detailed statistics of productivity and national income, since far too many things are going on at the same time over short periods for it to be plausible thus to evaluate these particular factors. But, on a broad view of history, which is surely more to the point in this connexion, the evidence is very strong. The communities that have paid most attention to higher studies have in general been the most obviously progressive in respect of income and wealth.

627. In reasoning thus, we do not mean to argue that the commercial return never has relevance to any possible argument: as we shall see later, it is certainly very relevant to questions of justice in the distribution of financial burdens. Nor do we wish to argue that, because the commercial return is an inadequate measure, there is no problem of allocation of resources in regard to education and that any kind and any amount of such expenditure has justification just because it is called educational. All that we are contending here is that a solution of the problem of allocating resources should not be sought on the basis of narrow notions of the nature of the economic return and of measurements which, if they are comparatively easy to make, omit elements of fundamental value.

628. The general purport of our argument, however, should be clear enough. The immeasurable element in the return on suitable investment in higher education is positive. Therefore, even if it could be shown that the return on the volume contemplated in our recommendations, as measured by earnings differentials, was likely to fall below the general return on commercial investment—which we are inclined to doubt—there would still be this important element to be added in. The problem of allocating resources still remains and there are other forms of investment that also bring 'external economies'. But there is, we submit, a presumption that the total amount can increase quite substantially in comparison with what has been spent hitherto without incurring discredit by comparison with ordinary commercial investment or with investment in most forms of nationalised industry.

629. These arguments would still hold if we were dealing with educational investment in a completely isolated community. It would still be true that the return in the shape of a versatile community, apt to mutual stimulation of invention and understanding, could by no means be measured by calculations of ascertainable pecuniary return. But they are even more

germane when dealing with the affairs of great commercial nations, partly dependent for their incomes upon their dealings with each other. In such a context, the contention that the return on investment in education is to be conceived simply in terms of its capacity to increase the earning power of individual citizens is even less plausible than it might be in a closed community. There are, of course, some kinds of specialised education that cannot in any way be said to affect productivity in the sense in which that conception is relevant to capacity to benefit from international trade. But, in general, it is not seriously open to doubt that if in any country educational investment in general and investment in higher education in particular falls appreciably behind what is being undertaken elsewhere, then, in the long run, general earning power is liable to be affected far beyond anything that may have been foregone in the way of pecuniary return on investment in the individuals concerned. This is not merely an academic consideration. If the conclusions we have reached as a result of our investigations of educational plans abroad are at all correct, the danger seriously threatens this country in the future.

630. Considered, therefore, as an investment, there seems a strong presumption in favour of a substantially increased expenditure on higher education. Even if we cannot produce detailed computations of comparative yield, there is a strong probability that the country would have to go a good deal beyond what is contemplated in our recommendations before the return in terms of social net product could be said to suggest general over-investment in this sector.

BUDGETARY CONSIDERATIONS

631. Having established this general presumption, we may now proceed to consider these estimates in the context of public expenditure in general. For this purpose the increases in costs may be divided into two main categories: first, increases due to the provision of more higher education, either in the form of increased numbers of students, or of proportionately more expensive buildings and equipment, and second, increases due to higher salaries and wages in higher education and higher rates of student maintenance (both of which are due to the assumption of growing national productivity).

632. With no rise in productivity, the provision of more higher education would increase public expenditure on full-time higher education from £206 million in 1962/3 to £506 million in 1980/1 (see Table 56). Expressed as a proportion of the gross national product, the increase would be from 0·8 per cent. in 1962/3 to 1·9 per cent. in 1980/1, on the assumption that the gross national product would grow at the same rate as the labour force.

633. It is difficult to believe that the increases due to higher salaries, wages and student maintenance can give rise to very grave apprehensions on the part of those concerned with the preparation of budgets. For, as we have already shown in paragraph 616, the projected increase of £236 million

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on this score (which, together with the £506 million, makes up the estimated total of £742 million) is simply a reflection of the assumption of growing national productivity. Moreover, this increase in cost would be accompanied by a more than proportionate increase in the gross national product; for the latter would grow, not only with the labour force, but at a further $3\frac{1}{2}$ per cent. per annum as well. Public expenditure on higher education in 1980/1 would, on these assumptions, be £742 million (at constant prices), or about 1.6 per cent. of the gross national product. It may be that productivity will not increase as much as has been assumed—in which case the increase in the cost of salaries, wages and student maintenance will be correspondingly reduced, though the proportion of the gross national product will be more than 1.6 per cent.

634. Is this extra proportionate call on the national income likely to cause an undue strain on the resources of the future?

635. On this question we have two main observations to make. The first is one of general principle. It is our assumption that national productivity, and hence national income per head, will increase at $3\frac{1}{2}$ per cent. per annum. It is, of course, an open question whether the increase will be as fast as this; and it is perhaps relevant to ask whether the assumption that it will happen in the intensely competitive world of the future is justified save on the further assumption that considerably more is spent on higher education. But leaving that question on one side, and assuming that somehow or other national income per head has increased at this rate, we submit that it is not unreasonable to expect that the nation should be prepared to spend a higher proportion of it on services such as higher education. One may buy less of services such as bus travel if one's income rises, but surely not less education. To spend more on higher education would almost certainly be the average family's individual response. Why should it not be assumed to be true of the community of families considered collectively?

636. But, secondly, what of the burden on the budget? Needless to say, if all other items in the budget rose proportionately to national income, a more than proportionate increase in this item would produce a total budget that took up a greater proportion of national income. If this happened, it would not necessarily be insupportable. But in fact the assumption that all other items do so increase is not consistent with our assumption of a constant overall level of prices: only part of public expenditure is on services whose price must be expected to rise in line with national productivity; other items may fall in price. Furthermore, the existing fixed charges that are the legacy of past wars and so on will remain constant. And beyond all this it is quite conceivable that there are items in the present composition of the budget that, on calm consideration, may be deemed less urgent than a better educated population—items that in their present magnitude add up to quite as much as the entire contemplated increase in expenditure on higher education. In the last resort, public money is spent on what people want; and if they want more higher education then, on the estimates we have made,

Financial and economic aspects

it should be possible to finance it without imposing intolerable strains on the budget or the economy.

FINANCING HIGHER EDUCATION BY LOANS

637. Some of our witnesses have argued that the strain on the budget would be eased and various other useful purposes would be served if some at least of the finance of higher education were to be provided by way of loans rather than subsidies: loans to universities for the provision of buildings and equipment, loans to students for the payment of fees and maintenance. Such proposals are obviously not impracticable—there are plenty of examples in foreign practice—and the weight of the authority of some who have supported them makes it desirable to examine them at some length.

638. Loans for buildings and loans for student fees and maintenance fall clearly into different classes, both as regards their justification and their administration. In what follows, therefore, we shall deal with each separately. But before we do so there is one general argument that must first be disposed of. Needless to say, at the time when it is raised, loan finance of this sort involves less burden on the current budget than finance by taxation. If, in one way or another, the capital market can take over the financing of building institutions of higher education, then to that extent the budgetary burden is reduced to the provision of interest and amortisation. Loans to students would be on rather a different footing, for it is not to be supposed that they could be financed directly from the capital market. But there is nothing to prevent the Government from regarding them as a capital item and itself borrowing the amount necessary for the constitution of a revolving fund. Even if the initial moneys were raised by taxation, as the loans are repaid there must be some easement of the commitments of the budget.

639. All this must be common ground. When, however, it is claimed, as it sometimes is claimed, that the loan plan eases the burden not only on the budget but also on resources in general, it is necessary to point out that this involves misunderstanding. As we pointed out in paragraph 601, the cost of education to the community must in the ultimate analysis be the value of the goods and services sacrificed by devoting resources to this end rather than to some other; and whether this is paid for directly by the imposition of taxes or by the raising of loans the current sacrifice is the same. A tax to meet capital costs as they arise imposes the necessary abstinence on one set of people, a loan on another set; but, prices and costs remaining constant, the amount of resources involved is identical. It remains true, of course, that the indirect and long-term effects of alternative methods of finance may differ considerably. But, on this plane of analysis, it is a mistake to suppose that the arguments are always one way. Borrowing at a time of inflation might increase the pressure on resources, whereas suitably devised taxation might be neutral, or even some restraint. Borrowing in a depression might tend to a reversal of the tendency, whereas taxation might deepen it. There are so many

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possibilities to be considered that it is difficult to achieve any simple generalisation. The one thing that is certain is that the loan method *per se* must impose exactly the same current use of resources as the revenue method.

Loans for buildings and equipment

640. We make no recommendation on loan finance for universities. Loan finance is the norm for institutions maintained by local authorities and also for nationalised industry: its extension to universities seems to raise no objection in principle. It is clear that in so far as relief of the budget (as distinct from relief of the total pressure on resources) is regarded as a desirable objective, it would have this effect. But the question whether it would be a desirable complication in the general planning of public investment is highly technical and we prefer to leave it for more expert discussion.

Loans to students

641. Loans to the few individual students who find themselves in financial difficulties are a normal feature of academic life and raise no special problems. Institutions have their own techniques for ascertaining needs and arranging terms of repayment; we have heard no complaints on this score. But the suggestion that students in higher education should in general be financed either wholly or partly by loans rather than grants is a different matter. It is not completely novel: for there is a good deal of this abroad,* and it has been tried in this country in the past for intending teachers; but its introduction on a large scale would be a break with recent tradition. The case must therefore be examined with some care.

642. Apart from relief to the budget, there are two arguments in favour of this form of loan finance. The first is an argument on the distribution of burdens. Higher education, it is argued, is an investment that, in many cases at least, carries with it the prospect of earnings substantially higher than the earnings of those who have not had it. Admittedly it is highly desirable that this privilege should not be confined to those whose family position enables the necessary finance to be forthcoming—*la carrière ouverte aux talents* is an important social objective. But if finance is provided by outright subsidy from public funds, it is said, a new position of privilege is created: the recipient of the subsidy is being put in a position to command a higher income in virtue of taxes paid, in part at least, by those whose incomes are smaller. It is therefore urged that what is needed is not outright subsidy but a system whereby young men and women who have the prospect of being able to improve their talents by further study are provided with the necessary finance by loans repayable in the future on reasonable terms out of their taxable income; or, as a variant upon this, a provision in the tax law whereby those who have been thus helped are taxed at a suitably higher rate until the assistance can be judged to have been repaid.

* See Chapter V, paragraph 108.

643. The second argument is an argument of morals and incentive. It is said that the student financed by grants is sometimes apt to take his privilege for granted ; and that this may have as a by-product the lack of any particular sense of obligation and need to work. By contrast, the student financed by loan is likely to have a greater sense of individual responsibility. He knows that he has to pay the price later on and is therefore all the keener to get the most out of what he is buying. The advocates of this plan point out that already in this country more is spent from public funds on the individual student in higher education than elsewhere in the world ; and they ask whether, if the system is to be extended as we hope, it is not right that the students themselves should bear part of the burden as soon as they are in a position to do so.

644. The arguments against a system of student loans are also twofold. In the first place, it is said that the connexion between higher education and individual earning power can be over-stressed. Not all forms of higher education produce a large earnings differential and, as higher education spreads, such differentials may tend to diminish. As we have seen earlier, the social advantages of investment in higher education may vastly exceed the commercial return ; and to apply to higher education in general criteria of capacity to repay that only apply, and that only partially, in certain parts of the field is to risk as much injustice as the grant system is liable to create. This may be an overstatement, But it draws attention to real dangers implicit in plans for all-embracing loan finance.

645. The second group of objections is more practical. It is a bad thing, it is argued, for young people to emerge from the process of education with a load of debt. It is an anxiety and an incentive to caution at a time when willingness to take risks is desirable. In such circumstances, it is said, the loan plan, in contrast to the present system, might tend to diminish the supply of talent coming forward and so lead to a social loss out-balancing any gain in apparent justice. In particular, where women are concerned, the effect might well be either that British parents would be strengthened in their age-long disinclination to consider their daughters to be as deserving of higher education as their sons, or that the eligibility for marriage of the more educated would be diminished by the addition to their charms of what would be in effect a negative dowry.

646. It is also sometimes argued that, where loans of this sort have been made in this country, experience has revealed great administrative difficulties in securing their repayment. On the other hand, repayment might be made more readily, and certainly with less burden on central government, if the administration of a loan scheme were in the hands of the institutions of higher education themselves.

647. We find these opposing arguments very evenly balanced, and there were differences of view amongst us on their relative importance. The argument from distributive justice has a strong appeal, which might well grow stronger as the educational budget increases. On the other hand,

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the argument is also strong that the earnings differential is only a minor indication of the benefits of widespread higher education; and that anything tending to make talented young people less willing to enter higher education would involve social loss. But we were able to reach a common conclusion as to policy in present circumstances. On balance we do not recommend immediate recourse to a system of financing students by loans. At a time when many parents are only just beginning to acquire the habit of contemplating higher education for such of their children, especially girls, as are capable of benefiting by it, we think it probable that it would have undesirable disincentive effects. But if, as time goes on, the habit is more firmly established, the arguments of justice in distribution and of the advantage of increasing individual responsibility may come to weigh more heavily and lead to some experiment in this direction.

THE FINANCE OF INSTITUTIONS

648. The expenditure of institutions of higher education is now largely met by grants from public funds. Grants apart, the most important sources of income are fees, gifts and endowments; we shall have something to say about each in turn.

Fees

649. As Table 58 shows, fees met almost a third of university expenditure before the war; the proportion in other institutions was smaller. But in all sectors of higher education the proportion of expenditure met from fees has declined: in universities it is now no more than 11 per cent., and 6 per cent. in advanced further education.

TABLE 58
Student fees as a percentage of institutional expenditure: by sector
Great Britain 1937/8 and 1962/3

	Percentage	
	1937/8	1962/3
Universities	32	11
Teacher training	25	19
Advanced further education	14	6
All higher education	27	10

Source: See Appendix Four, Part IV, Table 7

Notes: 1. This table excludes expenditure on the provision of board and lodging.

2. Data for further education in 1937/8 are estimated.

650. The causes of the relative decline in the importance of fee income are not far to seek. On the one hand the increasing public demand for more higher education has involved increasing subventions by way of direct subsidy, and might in any event have led to a diminishing proportion

of other items. But beyond this, there has been a failure to raise fees commensurately with the general decline in the value of money. Whereas the cost of living in general has trebled since 1938, university fees have on average only risen by three quarters.

651. The reasons for the policy of keeping fees down are fairly obvious. In a period when the desirability of more higher education for those capable of pursuing it was coming to be more and more appreciated, it was a natural impulse to refrain from anything that appeared to impose a disincentive. Moreover, since some at least of the public subventions were paid by local authorities and some at least of the fees came from the same sources, it was held to be unwise to do anything that might affect the amount of the direct subsidy. This may have been an ill-conceived attitude, focused merely on short-run expediency. But, in the difficult financial position in which the universities have had to struggle since the war, it is not at all hard to understand.

652. Nevertheless we think that the decline is to be regretted. It is true that in present circumstances the majority of fees, equally with grants, come ultimately from the public purse. But it is a source of strength that public finance should come through more than one channel. This is one of the virtues of the system of grants from the Research Councils, to the importance of which we have already drawn attention.* If there is a temporary dispute with the grant-giving authority so that the grant is less than expected, fee income at least is unaffected. Moreover, there is cogency in the argument that, up to a point, it is better to subsidise students than institutions. While student grants were of limited availability, the arguments against bringing fees more into line with costs were very powerful; and if such a state of affairs still persisted, we should expect great resistance to such a policy. But, in present conditions, when the great majority of students resident in Great Britain can obtain a grant, the old arguments seem no longer to apply. Accordingly, if other arguments support the policy, it seems reasonable to suggest that more of the public subvention to higher education be made by fees and less by direct subsidy. If fees were raised until fee income was closer to its proportionate size before the war, and if student grants were raised commensurately, the students would not be out of pocket and the effect on public expenditure would be mainly a change in the channels of distribution. We have been informed by the Treasury that there would be no technical difficulty in adjusting subvention from the central government to take account of the increased burden on the local grant-giving authorities, and if this policy were adopted it would be essential that such an adjustment should be made.

653. In arguing thus we are not associating ourselves with those who urge the raising of fees until they cover, if not all, at least a large percentage of the costs of the various institutions concerned. There are considerable difficulties, both administrative and political, in such a policy. It would probably involve widely differing fees for different courses of study, with

* See Chapter XII, paragraph 546. The work of the Research Councils is described in Appendix Four, Part I, Section 2.

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the administrative complications such differentiation would entail. And, if fees were at a high level and were met, as is intended, from the public purse, it is highly probable that the level of fees rather than broad questions of educational policy would become the focus of public discussion; and if this were so the problem of preserving academic freedom would present itself in a new form.

654. We would emphasise that our recommendation is not so radical. Income from fees has declined proportionately and we think that there are good reasons for reversing this tendency. Accordingly we recommend that the level of fees be revised so that in future they meet at least 20 per cent. of current institutional expenditure. Some of us would prefer to see the proportion greater.

655. In addition to the advantage of providing variety in sources of income, such a change would have a further advantage: it would permit a more rational handling of the subsidy to overseas students. As we have said, we strongly favour the intermixture of home and overseas students in British institutions of higher education. But under present conditions, with fees at their present level, it involves a substantial subsidy over which the nation has no control and for which it receives no credit. Some students who come do not need a subsidy—they are the children of very rich parents—and few, if any, students realise they are getting one. We cannot think this is desirable. We do not suggest that a higher fee be charged to overseas than to other students, but we recommend that the principles on which fees for overseas students are calculated, which at present vary somewhat from one category of institution to another, should in future be uniform. To raise fees as suggested in paragraph 654 and at the same time to create, as part of the national contribution to foreign aid, a fund out of which assistance could be given to needy applicants, would surely be a more rational procedure than present practice. The contribution to international development would be more apparent, and subsidies could be guided with more ease to those who really need them.

656. It may be argued that making assistance overt in this way would give rise to political difficulties; and for this reason some witnesses to whom we have suggested this plan have objected to it. But we are unable to believe that any such difficulties would be insurmountable. Awarding scholarships and bursaries is a matter of which British institutions of higher education have considerable experience. We are quite sure that, if such a task were considered inappropriate for governmental agencies, the universities and colleges concerned would be well able to devise suitable ways of administering funds of this sort that would be completely immune from the criticism of political discrimination. We cannot believe that if the policy of raising fees to the extent we have suggested is considered to be appropriate for the great body of students from Great Britain, it should be held up on account of a margin of one tenth of the student body coming from overseas. It could be carried through, by the methods we have recommended, not only with no disadvantage to any foreign

connexion, but rather with real advantages in the shape of better selected students more aware of the help they receive.

Gifts and endowments

657. Finally we must say a word about gifts and endowments. These no longer furnish so high a proportion of the income of institutions of higher education as in times past. Inflation and the limitation of the old Trustee Acts have wrought havoc with the purchasing power of many endowments. Even though industrial and commercial companies have to some extent taken the place of the individual donor, there has never been any likelihood that income from such sources would increase proportionately with the increased volume of expenditure needed.

658. We should like to state emphatically that the assumption of extended responsibility by the state has not made benefactions any less desirable or deprived them of their *raison d'être*. Anyone who has administered a cultural or educational institution knows the enhanced sense of freedom and flexibility that comes from the possession of funds that are not dependent on government and not limited by official regulations. They often provide an essential lubricant in temporary difficulties; and in a time of rapid expansion they may be of very great value in enabling institutions to go forward with confidence and at an increased pace. We regard such funds as an ingredient of health and a safeguard of initiative and variety, in a system dependent for the major part of its finances upon the state. We should be glad to think that all institutions of higher education had nest-eggs of this sort. We have observed with great pleasure the response made by industry and by private donors to appeals from new and expanding universities.

659. Opinions may well be divided upon the desirability of providing positive incentives through the tax system to benefactions of this kind. But if benefactions are in themselves desirable, there should be no regulations or procedures that offset their effect. If the acquisition of funds from other quarters is made the ground for reducing public subsidy otherwise available, this is an inevitable disincentive to benefactions. If, for instance, the potential donor of funds towards a new building is told that, in so far as any of the cost is provided by the state, there must be no departure from some uniform level of architectural amenity, he is certainly not likely to be so willing to give as if he knew that his gift would lead to something more distinctive. Similarly, there can be little incentive to raise money for the endowment of special posts if the only result is that the recurrent grant is correspondingly diminished. Problems of political and social philosophy begin to obtrude here. But unless it is decided that in the world of the future there is to be no scope for private benefactions of this kind, we are convinced that the solution must lie, not in penalising those who receive benefactions, but in making sure that those who are not so fortunate do not fall below a certain minimum level.

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CONCLUSION

660. In conclusion we revert once more to the main theme of this chapter. The costs of the plan we have put forward are considerable. They involve an increase in the percentage of the national income devoted to higher education. They may involve increases of taxation, though whether this will be so depends upon the extent of other commitments, upon financial policy in general and upon the increase of productivity. But we are convinced that no economic consideration need hinder their adoption if we as a nation desire the educational changes they will make possible. Whether we have them or not is a question of choice. It is not a question of any technical or economic inability to achieve them.

CHAPTER XV

The internal government of institutions of higher education

661. The internal organisation of institutions of higher education is described in some detail in Appendix Four, Part I. In this chapter we shall begin with problems that have arisen in the government of the present universities. The principles we shall advocate are, however, applicable to all autonomous institutions and should be followed when charters are given. Next we shall refer to the internal government of Colleges of Education, and go on to make recommendations about the internal government of institutions of further education. Finally, we shall discuss the relations of universities with each other, touching both on federation and other forms of association and on the Committee of Vice-Chancellors and Principals.

PRINCIPLES OF INTERNAL GOVERNMENT

Universities

662. Apart from Oxford and Cambridge, whose constitutions involve almost complete control by their academic members, internal university government both in England and Wales is a twofold structure. The ultimate governing bodies are the Court and the Council. The Court is a general supervisory body; it is normally large and of predominantly lay membership. The Council is the executive governing body that actively controls finance and external relations*; it usually has certain duties and responsibilities independent of the Court; it also has a predominantly lay membership. Some members of the Council are appointed by the Court. At the apex of academic government is the senate, which also in some cases has certain powers independent of the Court and Council; it is composed of academic members; for practical purposes the role of the Court in senate affairs is confined to ultimate appeal in case of disagreement on the main academic body or to co-ordination in matters where academic policy impinges on external relations. We have received critical submissions both on the roles of the Court and Council and on the constitution of the senate.

The lay element on governing bodies

663. Criticism of the Court and Council relates to the predominance of lay membership. The more extreme view is that lay members are not only unnecessary but are an imposition on the teaching body, indeed, that nothing but complete autonomy for the teachers is appropriate to an academic corporation.

664. We are not in sympathy with this view. More than 85 per cent. of university finance comes from public sources and in our judgment it is in general neither practicable nor justifiable that the spending of university

* In Scottish universities the Court, a small body of predominantly lay membership, is both the supreme governing body and the executive body.

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funds should be wholly in the hands of the users. Academic autonomy is more likely to be safeguarded where the public has a guarantee that there is independent lay advice and criticism within the universities.

665. Moreover we believe past experience to show that the universities have benefited greatly from the initiative and wisdom of lay members on their governing bodies. Where men and women of wide experience and high standing in the world of affairs can spare time to associate themselves with university activities, the universities gain from the partnership strength and sagacity in their dealings with the outside world. And, even where academic affairs are concerned, lay arbitration is a valuable resource in case of conflict. We are sure that teachers have an important contribution to make to the discussion of the non-academic affairs of their institution and we are therefore much in favour of their adequate representation on ultimate governing bodies. But we are in agreement with the principle of a majority of lay members on the Court or the Council.*

666. Having said this, however, we must at once add that the mixed system we favour only works where it is run with good sense and moderation. A governing body with a lay majority is justifiable only when it recognises a proper division of labour between itself and the senate, or whatever the academic governing body is called. Its function is to bring outside wisdom to bear on the external relations of the university and the evolution of its general policy, and to act as arbiter on matters that cannot be resolved by the academic staff. It is no part of its function to interfere in the business of internal academic organisation, still less in matters of syllabuses and curricula. The situation is likely to become intolerable if such attempts are made. We are confident that, in general, the governing bodies of universities in Great Britain observe the necessary distinctions, though the equilibrium must always be delicate and cases of infringement may occasionally occur.

667. There is a further condition of success to which we attach great importance. When, in accordance with university statutes, lay members are appointed as representatives by some outside body, it is essential that they should be appointed for a definite period of years and as individuals rather than as mere delegates. That is to say, those outside bodies that have the right of making such appointments should exercise great care to ensure that the persons concerned are appointed in virtue of their capacity to make a useful contribution to discussion of the university's affairs rather than on any other basis.

The composition of the senate

668. The second type of criticism about the internal government of universities is directed against the composition and powers of senates. We have received from the Association of University Teachers and representatives

* These remarks must not be taken as endorsing the specific arrangements made in every university to secure a voice for laymen in university affairs. In Scotland, in particular, the role of the General Council will doubtless be examined as part of the general review of Scottish legislation affecting the universities which we recommend in paragraph 690.

of junior teachers allegations about the excessive power of the professoriate. We were told that in some universities all the important decisions about general academic policy rest in the hands of bodies composed predominantly of professors. Thus, in English civic universities, in Wales and in Scotland, professors outnumber other academic staff on the senate in all cases where we have information and often by five or even ten to one. Both on questions of major policy and in the more intimate running of faculties and departments, the non-professorial members of the staff of such universities are said to feel that they have an inadequate share in determining the evolution of the society of which they are members.

669. There is some justification for these complaints. But it must be recognised that one reason for the present state of affairs is simply that the universities have grown in size. In the days when the older civic universities were founded, the ratio of senior to junior posts was much more even than it is now ; and, with the prospect of achieving senior status themselves, it did not seem to junior teachers intolerable that the burden of administrative responsibility should rest chiefly in the hands of the professor. In more recent years, however, the ratio has altered ; some of the dissatisfaction that our witnesses have expressed must be caused by the fact that the junior teacher now has smaller prospect of achieving administrative responsibility, and enjoys fewer opportunities for informal contact than arose naturally when universities were smaller.

670. To some extent, therefore, the position would be improved if there were proportionately more senior posts ; we drew attention in Chapter XII to other cogent reasons for improving the ratio. But even when this improvement takes place we suspect that some discontent will persist and that there may be justification for it. The problem is a real one, and provision for a small representation of other grades on the senate, which is now general practice, is not in itself a complete remedy. In our judgment the solution is to be found in the distinctions that must be drawn between the different functions that have to be discharged in the life of an academic institution. While there are some functions which must properly remain the responsibility of the professoriate, there are others where both senior and junior non-professorial staff can and should play an important part.

671. Among the former comes the day-to-day assignment of tasks and routine duties. This may impose a great burden, as our survey of university teachers showed.* Professors spend an average of ten hours a week in term-time on administration, compared with the three hours spent by lecturers. But it is a function that must rest with the heads of sections and departments. The idea that it can be sensibly discharged by a democratic committee or by someone elected 'democratically' is remote from reality. There should, of course, be the possibility of appeal if arrangements are considered to be inequitable ; and a sensible head of department will know how to keep things going without very often appearing to issue orders. But there must be someone to take decisions ; and we have heard nothing that leads us to question the appropriateness of the head or chairman of the department being the person responsible.

* The relevant findings from the survey are described in Appendix Three, Part I, Section 10.

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672. Second come matters of establishment, such as appointment, promotion and recommendations to the ultimate governing body about individual salaries. These too are functions best discharged by the professoriate. It is only sensible and proper that decisions about promotion, for instance, should be in the hands of those who have no more to hope for. Otherwise, the door is open to interested combinations and bargains; even where these do not emerge, the junior who is on a promotion or appointments board may be in a position of acute embarrassment. We do not think there should be any subtraction from the power of the professoriate here, although doubtless wise professors will take much informal counsel before making their recommendations. We do not say the discharge of such functions by professors means that the best decisions are reached in all individual cases. But we do say that a promotion board or appointments committee drawn from the professoriate is less exposed to irrelevant influences than a committee with a mixed academic membership, and is likely therefore, over time, to discharge its functions better.

673. There remains, however, a large residue of matters, ranging from broad questions of policy and general methods of instruction to questions of syllabuses, on which there is no special reason to assume that the holders of chairs have a monopoly of wisdom, on which indeed junior staff are quite as likely to make a valuable contribution. This field includes a large proportion of the questions on whose proper solution the progress and happiness of an academic institution depends. We think there is strong reason to afford all members of the permanent staff an effective and satisfactory representation on the senate and its committees in formulating such policy.

674. We must add that, like any other machinery, the machinery for the academic government of a university can only work efficiently if it is not overloaded. In common with all 'democratic' arrangements, its efficiency depends upon restraint and good sense. At all times, but particularly in a period of rapid expansion, it would be a drag on progress if the senate insisted upon exercising jurisdiction in matters of detail. The proper function of the senate is to take decisions on matters of broad principle, leaving to its committees, to boards of studies and to boards of examiners matters of detail. Moreover, as institutions grow, it will be necessary to pay increasing attention to the size of committees if they are to continue to be effective. Even a board of studies concerned with one subject can become too large.

The importance of internal communications

675. The day-to-day conduct of policy must rest with the heads of institutions and the proper officers. But the creation of an atmosphere of confidence is essential. So far as is consistent with the avoidance of delay and hindrance, the staff should be kept properly informed of university plans and developments. In a time of rapid expansion, when important decisions are being taken almost every day, it is not always possible fully to discuss them with all concerned and to explain their probable implications. It is not unnatural therefore that those who are asked to make changes and carry new burdens sometimes feel that they should have been first consulted as to whether the

Internal government

changes were right and the new burden tolerable. But a university can scarcely expand at the rate at which many are now expanding, or conduct its business at a reasonable pace, if all its teachers have to be informed, let alone consulted, at every stage about every decision that is taken. Moreover, a university is a complex community and few of its members can be expected to have full knowledge of all its activities. But it is important that those who take decisions at all levels should have the confidence of their colleagues, and to secure it they must do all they can to ensure that full information about policy and plans is widely disseminated.

The vice-chancellor or principal

676. This leads us to the position of the vice-chancellor or principal. His is a role which, probably fortunately, is seldom precisely spelt out in written constitutions. Yet it would be difficult to overstate its importance, particularly in a period of expansion, which calls for imagination and continuous initiative. There is a grave danger that the needs of expansion and the increasingly complex relations between institutions of higher education and government will impose upon the heads of universities a quite insupportable burden, unless steps are taken to relieve them. There are certain duties of which the vice-chancellor cannot divest himself. He is at once a member of the governing body and the chairman of the main academic councils. He must therefore be at the centre of all discussions involving broad questions of internal policy or relations with the outside world. He must represent his institution in all formal or informal relations with the University Grants Committee; he must be present at meetings of the Committee of Vice-Chancellors and Principals; he must keep in touch with potential benefactors, and he must be aware, in general, of developments in the various branches of learning. If he is to discharge such functions efficiently, he must not be overloaded with the detail of day-to-day administration and the work of subordinate committees. No other enterprise would impose on its chairman the variety and burden of work that the modern university requires of its vice-chancellor. We recommend that governing bodies should give serious attention to improving their organisation here. This is an important and growing problem, and it is urgent to find a solution if the needs of expansion and reform are to be met. We make no precise suggestions; circumstances differ and, while in some institutions the need may perhaps best be met by the appointment of permanent pro-vice-chancellors, in others more complex measures involving the use of committees of senior academic and administrative staff may be thought to be the better arrangement. It is important, too, that the vice-chancellor should have the services of a well organised office; it may be that in some cases both registry and finance departments would benefit from the advice of modern business consultants.

677. The selection of a vice-chancellor or principal is perhaps the most important single decision that the governing body of a university may be called upon to make; and arrangements for doing so are not made easier by the fact that such a decision may arise only once in ten to twenty years and that, by the nature of the case, the university's chief academic member and administrator is precluded from offering formal advice and initiative.

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Serious gaps have sometimes occurred between the retirement of one vice-chancellor and the appointment of another. Such delays and their accompanying uncertainties are bad for the institution, particularly at a time when continuity of policy and policy decisions are increasingly necessary, and they create an adverse impression outside, which may even limit the field of choice. We recommend that the universities should consider both the timing of such new appointments and the machinery for making them. Most of the more recent vacancies have been due to retirements. These are generally known about two years ahead: this is not too soon to start looking for the new vice-chancellor. Senates should give a clear lead as to the qualities they will look for in their new vice-chancellor; governing bodies or their appointed committees should then examine thoroughly the selected fields of search and consider the potential candidates within them; this should be followed in turn by quick decisions—on both sides. The larger universities or the universities undergoing rapid change should consider whether the prospective vice-chancellor should serve an introductory year as a vice-chancellor designate before taking over. Any disadvantages such a transition period might have would be small compared with those of an indeterminate interregnum and a loss of continuity and momentum.

Colleges of Education

678. What has been said about the relationship between the lay and the academic elements on governing bodies and the desirable integration of the members of the teaching staff into academic counsels will apply in great measure to the Colleges of Education in England and Wales when they come to be administered through Schools of Education. We have recommended in Chapter IX that the same principles should apply to the Scottish colleges. In England and Wales the local authorities will continue to have a large measure of interest in the colleges that they at present maintain, and we have recommended in Chapter IX that this should be reflected in the composition of governing bodies.

Institutions of further education

Governing bodies

679. Many institutions, notably the Area Colleges and many of the Regional Colleges, will continue to be administered by local authorities. We recommend that each of these colleges should have a properly constituted governing body with academic representation and an outside membership selected by virtue of interest in and suitability for the work.* In making appointments to such bodies regard should be paid to the continuity of the educational welfare of the college rather than to political, professional, or other extraneous considerations.

Finance

680. We recommend that finance should be given to governing bodies under the broadest possible categories of expenditure. Detailed earmarking and control of items of expenditure by an outside body are unnecessary and

* This may, for example, include representatives of universities and of appropriate professions.

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wasteful not only of time but of money. Economy is more readily achieved through prudent management and careful buying by those responsible than by a rigidly detailed allocation of funds for particular purposes. We are advised that there is no legal impediment to prevent a local authority from provisionally agreeing expenditure several years ahead. The agreement must of course be subject to the annual voting of funds, but this is equally true of government grants to universities. We recommend that local authorities should agree budgets for the major colleges they administer up to three years ahead. In this way the colleges will be able to plan ahead on a surer basis than they can now.

Academic appointments

681. In making academic appointments, different types of appointing body are appropriate for different purposes. The headship of an institution is clearly a matter for the governing body, but a governing body on which academic interests are well represented. The filling of senior posts is chiefly a matter for the head of the institution and his senior colleagues, but it is a function in which lay participation is valuable. Junior appointments are best left to appropriate committees of academic staff. It is always possible for lay members on the governing body to question the wisdom of particular appointments, but it should be understood that this should only be done when there are solid reasons for doing so.

Academic organisation

682. We recommend that the principal and senior academic staff should control the admission of students; and that there should exist a system of boards of studies charged with making detailed recommendations for syllabuses and keeping the development of the subjects concerned under continuous review.

THE FEDERAL PRINCIPLE AND OTHER FORMS OF ASSOCIATION

The University of London and the University of Wales

683. Institutions that are of university level and size are sometimes linked together in what may be described as a federal relationship. In the University of Wales and the University of London this relationship takes the form that the individual institutions concerned have the status of constituent colleges of a federal university.

684. The advantages of such arrangements may be considerable. They may facilitate a common policy where common policy is appropriate, for example in the planning and sharing of joint facilities such as libraries and expensive scientific equipment. Moreover, they may make possible the sustaining of institutes for highly specialised studies, of which the Courtauld Institute and the Institute of Historical Research in London University are famous examples.

685. But against these advantages must be set the fact that, as such universities grow, their very size can involve drastic and sometimes undesirable changes in the machinery of government. Power tends to become concentrated in the centre, and the link between the central authority and the

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places where teaching and research are actually carried on becomes increasingly tenuous. To counter this it becomes necessary to set up a system of boards and committees that consume time and distract academic staff from their primary function. Moreover, the intervention of the university between the basic academic unit, the college, and the national system makes for delay and inhibits decision. There are real anomalies in a system in which the vice-chancellor of a newly-founded university at once has access to the University Grants Committee and the right of membership of the Committee of Vice-Chancellors and Principals, while heads of long-established London colleges, each as large as a civic university of moderate size, have no such access or right of membership.

686. It has been represented to us that both in the University of London and in the University of Wales there are problems and inconveniences that call for investigation and remedy. These problems have indeed a significance wider than the internal arrangements of the university concerned. But we have not conceived it to be appropriate, either to our terms of reference or to our constitution in terms of persons, to investigate the affairs of particular universities; it would be more proper that they should be the subject of separate inquiry. If, therefore, the universities concerned cannot satisfactorily and speedily resolve their difficulties for themselves we recommend that these should be the subject of independent inquiry.

Oxford and Cambridge

687. There are similar problems and inconveniences inherent in the collegiate structure of the two ancient universities, which go beyond the domestic issue of the relation of the colleges to the university. We recognise fully the distinctive merits of the college system. It gives to both senior and junior members a strong focus of loyalty within a large institution, and allows the virtues of academic self-government to be widely diffused. But the number of times when it is necessary to except Oxford and Cambridge from general statements about British universities, the difficulty both universities have in reaching rapid decisions on matters of policy with their present constitutional arrangements, and the general obscurity in which so many of their administrative and financial arrangements are shrouded are not compatible with a situation in which they, like other universities, are largely dependent on public funds. Continuance of such anomalies may well endanger not only their own welfare but also the effectiveness of the whole system of higher education in this country, of which they are and should be so splendid a part. We are aware that in both universities these problems are being considered and solutions sought. We recommend that, if Oxford and Cambridge are unable satisfactorily to solve these problems within a reasonable time, they should be the subject of independent inquiry.

The Scottish universities

688. In Scotland, some limitation of independent action is imposed on the four older universities: St. Andrews, Glasgow, Aberdeen and Edinburgh. This stems from an Act of 1889 which governs the functioning of these

universities. The measure of dissatisfaction that results from this limitation is such that comment and recommendation are incumbent upon us. The Scottish universities have a distinctive history and character of their own, and it seems odd that such great centres of learning should be restricted in what they may do today by an Act passed seventy four years ago. The anomaly is more striking now that there is a fifth university in Scotland, not subject to these limitations, and will become even less acceptable as and when other autonomous institutions are given charters.

689. The Act of 1889 governing the conduct of the universities in Scotland was passed to modify and amend previous legislation on the subject. The most irksome of the obligations that it imposes relate to the establishment of chairs and to changes in curricula. In order to found a chair, or to abolish an existing one, the Scottish universities have to promote an ordinance, which is submitted in the first place to the other Scottish universities and then to the Privy Council. Before it can be fully approved it must lie before Parliament. The whole procedure seldom takes less than six months, and often much longer. For major changes in university curricula the same steps must be taken. This is to say, in effect, that the consent of the other three universities must normally be obtained before any one of them can take an initiative in its own business. There is no absolute power of veto, but the legal barriers that could be erected by a dissident university might take a long time to surmount.

690. We cannot believe that such a law now serves a useful purpose and, although we are assured that in practice the habit of informal conference and a disposition to give-and-take render it less irksome than it might easily be, we think that it must impose a limitation on initiative and experiment. The underlying intention of providing a safeguard for uniform standards may have been worthy of all respect, but it seems to have led to a system more dangerous than the risk of disparity against which it was supposed to be a defence. It cannot be a good thing that experiments and policies fully considered and weighed by the academic bodies that propose to carry them out should be dependent on the goodwill of those who have had no part in these deliberations and will have no responsibility for their execution; and it is surely wrong that valuable time should have to be spent circumnavigating all possible obstacles. Such limitations, although from moment to moment they may seem relatively unimportant, must cumulatively be a drag on progress and efficiency. The Scottish universities are right to say that their standards and characteristics should be preserved. It is right, too, that the state should be provided, as is laid down in the Act of 1889, with relevant statistical information. But there are other and better ways of achieving these ends. We have no hesitation, therefore, in recommending that the Act be repealed, that the constitutions of the four universities be correspondingly amended, and the opportunity be taken to reconsider any other features of their constitutions which may seem to deserve review in the light of the general observations in the preceding paragraphs. We would not wish to specify in detail the nature of any such amendments for these ancient foundations. Each case must be

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considered in the light of individual traditions. But we assume that, when their constitutions are being revised, the Grants Commission, to which we shall refer in Chapter XVII, will be consulted.

The procedure for university ordinances or statutes

691. In framing new provisions for the Scottish universities Parliament may wish to consider whether it is any longer necessary to require ordinances or statutes of these and certain other universities to be submitted for its approval in addition to that of the Privy Council. It seems anomalous that proposals for constitutional changes in the universities of Oxford, Cambridge, Scotland and London should have to lie before Parliament for periods ranging from four to twelve weeks when no such provisions affect other British universities.

THE COMMITTEE OF VICE-CHANCELLORS AND PRINCIPALS

692. We are clear that there is need for a body that can speak, and listen, on behalf of the universities as a whole. This pivotal role has come gradually to be occupied by the Committee of Vice-Chancellors and Principals, which was founded after the first world war for what were at first limited and modest purposes. Over the years, however, it has come to play an increasingly important part in the formulation of university policy and in consultations with the University Grants Committee.

693. If there is to be a more definite formulation of a higher education policy in future, and if the exercise of undue influence on the universities by the Grants Commission is to be avoided, the responsibilities of the Committee are bound to increase. While it neither can nor should be able to commit universities on its own responsibility, it will be increasingly needed as a forum of discussion in matters of general university interest. It will have no less important a part to play as a reception point for representations to the universities by those concerned with matters that impinge closely on the work of the universities: the schools, the Education Departments, and organisations representing other parts of the higher education system.

694. In addition to the anomaly we have referred to in paragraph 685, the Committee as it is at present constituted has two further weaknesses: firstly, it consists solely of vice-chancellors and principals; secondly, it threatens to become too large for effective action.

695. As regards the first, experience in recent years has shown the danger in some universities of a division between vice-chancellors and their colleagues; in some universities this has assumed such proportions that reference is heard to 'they' and 'we'. An increase in the Committee's responsibilities while its membership remained unchanged would only accentuate this attitude. Secondly, the Committee is perhaps already too large for effective action. The addition of representatives from the Colleges of Advanced Technology and the seven new universities already founded, let alone the six further new universities we propose, will in the near future result in a total membership of almost fifty. Clearly the Committee will no longer be able to conduct its business as it does at present.

Internal government

696. These two factors lead us to recommend that the Committee be reconstituted. Each university should have at least two representatives on the Committee, one of whom would be the chief administrator (the vice-chancellor or principal) and the other elected by the senate or corresponding body. The terms of office of the academic representatives should be limited to a short period of, say, three years, so that experience may be widely diffused. We think such an arrangement would have the advantages of improved communications between the universities and the Committee and of relief to the chief administrator from the sole responsibility in representing the opinion of his university.

697. Such a Committee would, however, be too large for effective discussion without systematic preparation. It would be desirable, therefore, that the Committee should have under it a standing committee of, say, fifteen to twenty members; the constitution of the standing committee should be such as to ensure reasonable representation of the various institutions and categories of members represented on the main Committee.

698. Most of the items on the agenda of the Committee of Vice-Chancellors and Principals do not normally call for much discussion or give rise to much controversy. The Committee might readily delegate responsibility for decision on these and other routine matters to the standing committee, subject to periodical reports.

699. On major issues, the first duty of the standing committee would be to arrange for effective discussion either by the full Committee or by institutions severally, or by both. It could aid such consideration by remitting an analysis of the points at issue and its opinions on them to the full Committee and, if necessary, through it to the universities. It could appoint standing sub-committees and *ad hoc* sub-committees for the study of special problems. The present Committee set a precedent for this on salaries and on admissions policy. The main Committee, which might well number over a hundred members, might meet once a term, while the standing committee could meet monthly, or more often if required.

700. We believe that, thus reconstituted, the Committee can provide not only machinery which inspires confidence within the universities and, through its standing committee and sub-committees, a valuable instrument for the investigation of university problems, but also an effective agency for the discussion and resolution of problems referred to the universities by those concerned with other parts of the educational system.

CHAPTER XVI

Academic freedom and its scope

701. We have now to approach the most important and the most difficult of all the problems we have had to consider—what machinery of government is appropriate for a national system of higher education in this country? We have emphasised repeatedly that all our predictions about future needs and future numbers are necessarily uncertain and that, if developments are to be appropriate in a changing situation, the system of higher education must be kept under constant review. A Committee on Higher Education every quarter of a century is not enough. An effective machinery by which necessary developments are fostered and necessary adjustments made is of first importance. But effectiveness in this sphere can only be achieved if a nice balance is kept between two necessities: the necessity of freedom for academic institutions and the necessity that they should serve the nation's needs. Further, this balance has to be achieved in the context of existing or possible constitutional machinery and habits. This is a matter of great difficulty and delicacy.

702. So far in the history of this country the activities of the universities have been remarkably immune from interference or control by the government of the day. Until the closing stages of the last century, apart from the granting of charters, the role of the State in regard to universities was limited to the setting up of an occasional Royal Commission and the passage of legislation to make possible the carrying out of its recommendations. More recently, even though the growing financial needs of the universities have increasingly made the State a provider both of recurrent and of capital grants, exceptional care has been taken to see that these subventions are made in a way that involves the minimum of interference with the policy of the universities. But we are now passing into a new era. The various recommendations we ourselves have made imply a greater degree of survey and co-ordination of higher education than has prevailed in the past. It would be generally agreed nowadays that the Government has a responsibility to ensure that the development of higher education is adequate to national needs. Moreover, it is clear, that in the determination of the aggregate amount to be spent from public funds, it necessarily has the last word.

703. The urgent question is whether in the conditions of today the freedom from control that the universities have enjoyed in the past, and to which such importance has been attached, can be expected to persist unchanged; and whether it can be extended in various degrees to other institutions of higher education. Will it be possible to secure the advantages of co-ordination while preserving the advantages of liberty? The question is of critical importance. Freedom of institutions as well as individual

Academic freedom

freedom is an essential constituent of a free society and the tradition of academic freedom in this country has deep roots in the whole history of our people. We are convinced also that such freedom is a necessary condition of the highest efficiency and the proper progress of academic institutions, and that encroachments upon their liberty, in the supposed interests of greater efficiency, would in fact diminish their efficiency and stultify their development. Before we can recommend what machinery should exist to provide proper relations between the central government and institutions of higher education, we must first investigate what are the essentials of academic freedom that it is imperative to preserve.

704. The concept of academic freedom entertained in most western countries has two aspects, personal and institutional. It involves the relationships of the individual teacher to his colleagues, his pupils and his institution. It involves the relations of academic institutions to society and the institutions of government.

INDIVIDUAL FREEDOM

705. For the individual teacher academic freedom means the absence of discriminatory treatment on grounds of race, sex, religion and politics; and the right to teach according to his own conception of fact and truth, rather than according to any pre-determined orthodoxy. It involves, further, freedom to publish and, subject to the proper performance of allotted duties, freedom to pursue what personal studies or researches are congenial. Freedom of this sort may sometimes lend itself to abuses. But the danger of such abuses is much less than the danger of trying to eliminate them by general restriction of individual liberty.

706. Difficulties may arise for the individual teacher through his position as a member of a department and of an institution, and in his relations with his colleagues. Here obviously matters are more complicated. The conception of proper academic freedom does not include the right to refuse to perform a due share of necessary duties or to accept an assigned place in work demanding co-operation, but it clearly includes the right to some participation in the formulation of common policy. Although the realisation of freedom in this connexion may bring considerable difficulties in detail, there is no great difficulty in the general principle. We have discussed such problems already in Chapter XV and recall them here only to show how they take their place in a wider system of thought.

INSTITUTIONAL FREEDOM

707. The important difficulties—and the difficulties chiefly relevant to the problem of the machinery of government—arise in connexion not with individuals but with institutions. When an autonomous institution is mainly dependent for its income not on the fees of the pupils, or on private endowments, but on subventions from the State, how far should it have completely independent powers of initiative and final decision? Such a position of material dependence is in fact today the position of

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the institutions of higher education in this country. The question, therefore, is by no means merely speculative.

708. It must be granted that a position that most of us would certainly not call freedom is compatible with much that is excellent both in education and in research. The position of many institutions of higher education abroad, with their syllabuses, their appointments and their expenditure all subject to immediate, and sometimes detailed, control by the State, is certainly not a position of academic freedom in the sense in which it is understood here. Yet it would be absurd to deny the quality of much that is done in such institutions, both in teaching and in the advancement of knowledge. Their contribution to the heritage of western culture is undeniable.

709. Nevertheless, it is a cardinal feature of academic tradition in this country to distrust such arrangements and to regard them as fraught with real danger to the foundations of free societies. The quality of the work done elsewhere is not denied by responsible persons. But it is held that this quality is achieved in spite, rather than because, of such conditions; and that experience shows what dangers they imply. We wish to endorse this attitude. In our travels abroad we have seen much that is admirable and much from which this country might well learn. But in this respect we have seen nothing that has induced envy of the position of other systems and much that has led us to prefer the British. We believe that a system that aims at the maximum of independence compatible with the necessary degree of public control is good in itself, as reflecting the ultimate values of a free society. We believe that a multiplicity of centres of initiative safeguards spontaneity and variety, and therefore provides the surest guarantee of intellectual progress and moral responsibility. We do not regard such freedom as a privilege but rather as a necessary condition for the proper discharge of the higher academic functions as we conceive them.

710. But freedom in this context is a complex concept and, in order to see exactly where it is, and is not, compatible with the claims of order, it is necessary to examine its various components, freedom of appointment, freedom to determine curricula and standards, freedom of admissions, freedom to determine the balance between teaching and research, and freedom to determine the shape of development.

The constituents of academic freedom

Appointments

711. We have no doubt that any obligation to refer appointments of staff to outside bodies for confirmation is an unacceptable limitation on the freedom of autonomous institutions. It may be that their recommendations are usually accepted and in this way a legal lack of freedom is compensated by custom. This is doubtless true of many continental countries where a minister is the ultimate authority in such matters. But it remains true that this *de facto* freedom exists only on sufferance; and there is the

terrible example of what happened in Nazi Germany and elsewhere to warn how easily it may be destroyed. It may be argued that without some outside check there always exists the possibility of scandalous or corrupt appointment and we would not deny this. But, apart from the pressure of public opinion, the habit of consulting external referees and the presence on most boards of electors of lay members are usually adequate safeguards. In any case we think that the risk is much less serious than the danger of interference on political grounds, which is inevitably present under any system of centralised control from outside.

Curricula and standards

712. The same considerations apply to the content of curricula and the maintenance of standards. It is fundamental that an institution should be able to prescribe the requirements of its courses and the combinations permitted. We know of no argument that would justify the imposition of external control from the centre in this respect, though it is obviously essential that the universities should consider carefully any representations made to them, for example, about the type of course best suited to various kinds of future teacher. Liberty to experiment with content and method is one of the surest guarantees of efficiency and discovery.

713. All this is also true of the maintenance of standards. Of course standards vary to some extent: such variations are in the nature of things. But an autonomous institution should be free to establish and maintain its own standards of competence without reference to any central authority. The habit of appointing external examiners from other universities and the obvious incentive to maintain a high place in public esteem provide in our judgment a sufficient safeguard against any serious abuse of this liberty.

Admission of students

714. There are greater difficulties about the admission of students. It would obviously be an infringement of freedom were academic institutions forced to accept or reject any particular student. We should qualify this judgment if institutions displayed tendencies to reject on racial, social or other grounds extraneous to academic suitability: an institution which imposed a *numerus clausus* on any particular group or which deliberately excluded otherwise suitable candidates on grounds of social origin would have scant claim to unconditional subventions from public funds in a free society. Moreover, it is essential that the arrangements for the selection of students should not only be fair, but also that they should be seen to be fair. But, subject to this, we hold that institutions should be free to choose those they teach.

715. The difficulties are greatest when it is a question whether institutions of higher education should have the ultimate right to determine their own size. There is little difficulty when an institution aspires to grow. It is only likely to be able to do so today if it receives increased subvention, and obviously there can be no unconditional right to the money for any

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increase demanded. There must be consultation between the institution and the grant-giving authority. But, should an institution subsidised by the State not wish to grow, the question whether it should be free to say it will go thus far and no further, even that it will grow at a given rate and no faster, is one that makes great demands on the conception of academic freedom. Clearly an institution must be free, if it is to maintain its standards, to relate the numbers it admits to resources that it has available. But if funds are available, refusal to co-operate in national policies or to meet national emergencies is an unsympathetic attitude, and it would be easy to think of reasons why it should be overruled. On balance we are clear that it is in the long-run interest of all that such an attitude should be tolerated. If, when all the reasons for change have been explained, the institution still prefers not to co-operate it is better that it should be allowed to follow its own path. This being so, it must not complain if various benefits going to co-operating institutions do not come its way.

716. A special aspect of admission policies is the prescription of entrance requirements; this is a liberty which has wider social implications. For obviously the work of the schools must be influenced by what is laid down; and it is not difficult to conceive of regulations that might have adverse effects on education in the schools. Nevertheless we hold that, subject to the obligation to consult effectively with the schools, institutions of higher education should be free to stipulate their general entrance requirements. There are dangers here; but we believe that they can be reduced and virtually eliminated by arrangements for consultation of the kind we proposed in Chapter VII. The only alternative must involve dangers that are far greater.

The balance between teaching and research

717. The same applies to the balance between teaching and research. It is easy to imagine a case based upon extreme and unlikely examples where some direct intervention by public authority might seem to be justified. A publicly subsidised institution intended to perform all the functions of a university that suddenly decided to devote the greater part of its resources to research, to the almost total neglect of teaching, would doubtless be something of a scandal. But in practice there is no reason to suppose that a public trust would be abused in this way, whereas there is every reason to suppose that limitations on the freedom of particular institutions to determine such matters would be much more likely to do harm than good. Only those who are intimately concerned are in a position to judge the appropriate balance in particular instances. And if there should be some overshooting of the mark, one way or the other, there are all sorts of informal means of inducing the appropriate correction without violation of this fundamental freedom of autonomous decision. It is the special virtue of administration by independent committees like the University Grants Committee that it makes possible the tendering of advice that has not the flavour of authoritative coercion, yet brings expert competence to the appraisal of academic efficiency.

Freedom of development

718. It is when development policy and programmes are considered that the greatest difficulties arise. Undoubtedly it is good that academic institutions should have the liberty to determine their own programmes and policy. It is good that they should be free to make their own experiments and to develop the subjects most congenial to their leading spirits. All restraints upon such liberty that are not dictated by overriding considerations of co-ordination and national need are bad. Looking back over past history, we suggest that it was a good thing that Cambridge was independent of Oxford and developed different methods and different courses. It was a good thing that the Scottish universities were free to develop a life of their own. It was a good thing that the founders of University College, London, were able to create an institution that in so many ways was different from either of the two ancient foundations of the south. The variety of the present pattern of courses and programmes is a matter for satisfaction rather than the reverse.

719. But it is unlikely that separate consideration by independent institutions of their own affairs in their own circumstances will always result in a pattern that is comprehensive and appropriate in relation to the needs of society and the demands of the national economy. There is no guarantee of the emergence of any coherent policy. And this being so, it is not reasonable to expect that the Government, which is the source of finance, should be content with an absence of co-ordination or should be without influence thereon.

720. Much can be done in this connexion by discussion and persuasion. On the whole, we believe it to be true that, where the Government has clearly formulated its conception of needs, most institutions of higher education with the power of independent initiative have in fact responded adequately. The record of the universities since the war goes far to support this view. We are confident that similar responses can be expected in the future. Moreover, even where free discussion is not sufficient to elicit the desired result in the desired time, it is still possible, and may often be expedient, to attempt to secure it by special incentives. A general or frequent resort to earmarking of grants would be open to serious criticism but, in appropriate circumstances, the technique of earmarking is acceptable and can hardly be described as an encroachment on academic freedom. If the development that is favoured in this way is antipathetic, there is no need to accept the grant.

721. Some problems cannot, however, be solved in this way. If the minimum development of a particular subject involves extensive expenditure, it is obvious that situations may arise in which it will be necessary for those responsible to choose between some centres and others. In a world in which resources are limited it is neither sensible nor feasible that every centre should be entitled to all kinds of development expenditure and, failing voluntary agreement, it is right that there should be a body with the power of decision. It is usual to illustrate this problem by reference to demands for giant computers or apparatus for nuclear research. But it would be a pity if the use of such examples were to give the

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impression that the problem arises only on the scientific side. The advanced study of many subjects classified under humanities and social studies may involve extensive and continuous expenditure on documentation and libraries. These are the equivalent on the arts side of laboratory equipment in pure science and technology, and it would not be reasonable to contemplate a state of affairs in which all the universities in the country were equally entitled to funds for building up the equivalent of the Bodleian or the British Library of Political Science.

722. What is true of subjects is also true of institutions. Public policy does not necessarily involve the development of all institutions of higher education at an equal pace. There must be selection. There must be the judicious fostering of some more than others. Our recommendation regarding the development of the Special Institutions for Scientific and Technological Education and Research is a case in point. To decide all such problems there must be a body with power both to allocate and also to deny. And, in so far as the development of the policies of individual institutions is influenced and conditioned by such decisions, the necessary restrictions on complete liberty are readily apparent. It is limitations of this sort, with all their administrative implications, that we have in mind when, in emphasising the claims of academic freedom, we stipulate that they must be consistent with the maintenance of coherence throughout the system as a whole.

Salaries and staffing ratios

723. Cognate difficulties arise over salaries and staffing. It is an obvious requirement of academic freedom that autonomous institutions should be free to determine the grade and position on incremental scales of individual appointments. But, when salaries form such a large proportion of total expenditure, when the source of the salaries is to so large an extent public money and when the maintenance within the public sector of appropriate relations between the remuneration of various professions and occupations is a necessary concern of national policy, it is not to be expected that there can be complete liberty over basic rates. Nor can the government remain completely unconcerned either with student/staff ratios or with the basic staff structure: it would be inadmissible for institutions to demand at once the liberty to determine the number of students they admit—which we have agreed to be an essential liberty—and entitlement to finance for whatever staffing arrangements they chose.

724. This is not to say, however, that the necessary degree of control need be either direct or detailed. We shall return at a later stage to the appropriate machinery for dealing with these matters. Here we content ourselves with the observation that the methods evolved by the government and the University Grants Committee offer a basis for further development. These are matters that are essentially for the administrative organs we shall describe later. All that we are concerned to establish at this point is the existence of certain necessary limitations on the scope of institutional freedom in this respect.

SAFEGUARDS FOR ACADEMIC FREEDOM: THE GRANTS COMMITTEE
PRINCIPLE

725. We believe that responsible academic opinion recognises the inevitability of these limitations. There may be some who still believe that it is an outrage if the role of the State or its organs is anything but completely passive; but they are not many. Nevertheless the whole question of control is understandably the subject of widespread apprehension. It is recognised that subvention involves allocation and that allocation may involve co-ordination and certain controls; and it is not felt that such measures need be an improper encroachment on legitimate academic freedoms. But it is felt that, without proper safeguards, the necessity for such co-ordination may easily come to be considered in the context of political considerations and pressures and that the orderly development of academic institutions may be liable to interruption by forces quite foreign either to education or to the advancement of knowledge.

726. We think that there is substance in these apprehensions. No one acquainted with the history of academic institutions in those countries where education is directly controlled by the State can deny that from time to time irruptions of this sort take place. Nor can it be denied that on occasions they have been very damaging and grievous. Unless we hold that British traditions and habits are so immensely superior to those of the rest of the human race that this sort of thing can never happen here, it is certainly not unreasonable to fear that, given the same setting, the same evils might occur.

727. Fortunately, this country seems to have hit upon an administrative invention that, although not precluding all such dangers, has the effect of making them much less probable—the device of interposing between the Government and institutions a committee of persons selected for their knowledge and standing and not for their political affiliation. In this way it is possible to ensure that the measures of co-ordination and allocation that are necessary are insulated from inappropriate political influences. This device is exemplified in the present arrangements for the famous University Grants Committee, and the principles it embodies are best explained by a description of its constitution and its mode of operation.*

728. The majority of the Committee consists of persons actively engaged in university teaching or research; the rest are drawn at present from other forms of education, from industry and from research establishments. It is presided over by a full-time chairman, himself, by tradition, of academic experience, and served by an independent staff. The Committee has the twofold function of advising the Chancellor of the Exchequer about the magnitude of the total grant which it is appropriate to give to the universities as a whole and of distributing this grant between the different possible recipients once it is made available. The Government is thus advised by a body which, though appointed by the Government, is independent of ministerial and departmental control and is composed chiefly of persons

* This treatment is necessarily brief; a fuller account is given in Appendix Four, Part I, Section 2.

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with intimate knowledge of university life and its conventions. This immunity from direct ministerial intervention is further strengthened by immunity from the normal obligation of public accountability. The Public Accounts Committee and its servant, the Comptroller and Auditor General, have available to them the published accounts of the universities and the information given in the annual estimates ; but they have no access to the books of the universities or of the University Grants Committee. The Treasury receives from the Committee information about the distribution of grants for major building works and proposals for any major variations in the distribution of grants among the main heads of capital expenditure ; and this information is also accessible to the Comptroller and Auditor General, who may, if he wishes, seek supplementary information from the Treasury.

729. Thus individual universities are very largely insulated from direct intervention by the Government or Parliament in the detailed ordering of their affairs ; and their freedom of action is further safeguarded by the practice of the University Grants Committee in making its main subventions to recurrent expenditure as block grants, with no specification of the detailed uses to which they may be put. Supplementary grants earmarked for special purposes have indeed been made from time to time when it was thought that reasons of national policy demanded special developments. But these are exceptions ; the money thus given is absorbed into the block grant as soon as may be.

730. Nevertheless the University Grants Committee is not passive in regard to the policy of particular universities. Its terms of reference direct it to make the allocations in the light of national needs. While the block grant is given without specified limitations, it is only given after an examination against such a background of the programmes proposed. Moreover, if, in retrospect, the grant given for any quinquennium is regarded as having been spent in a way contrary to public needs as the Committee conceives them, this may easily influence the size of the grant for the next quinquennium. Even more important is the fact that, beyond the grants for recurrent expenditure, there are capital grants for sites and buildings. These are necessarily specific to particular projects, and in the nature of things every application is examined on its merits. Here there is no question of passivity in matters of policy. While universities draw up their building programmes, these are evolved and discussed in detail in the light of views expressed by the Committee. It has been argued by several witnesses that, especially in a period of expansion, the general policy of universities is more dependent on capital grants than on any others ; and we have little doubt that this is correct.

731. We hope we have said enough to justify our belief that arrangements are possible for such co-ordination and survey as is needed to be provided without the intrusion of inappropriate political influences. Of course the insulation is not complete. Needs may be assessed in absolute terms by the University Grants Committee. But the assessment of their importance in comparison with that of other objectives of expenditure must be done by ministers, just as ministers cannot escape a concern for the extent of the

total provision for higher education and its broad division between different types of institution. We must make it clear, moreover, that there is no absolute safeguard against interference with the distribution of grants to universities. It is a convention that the Government abstains. But it cannot bind its successors; nor is its own agreement likely to imply abstention in the face of major difficulties. Nevertheless, despite such qualifications, there can be no doubt that constitutional arrangements of this sort can provide an efficient shield against the intrusion into academic life and policy of irrelevant political influences. It may be that such devices can only operate efficiently within certain limits of political temperature. But, since this is a biological quality that they share with most other rational arrangements, it is no reason for valuing them any the less. We regard the principle exemplified by the University Grants Committee as an essential ingredient of any future government machinery for higher education.

732. We began this chapter by asking whether it is possible for higher education to enjoy in the future at once the advantages of freedom and of orderly progress. Our analysis shows that the answer to this question is 'yes'. There is no reason why the needs of the future should infringe the fundamental freedoms. Where co-ordination is necessary, there are means to achieve it that do not involve compulsion and that provide an effective insulation from inappropriate pressures.

CHAPTER XVII

The machinery of government

733. We have now to consider the key problem of the appropriate machinery of government for the system of higher education. We have to ask how the existing machinery for the control of national and local institutions can be adapted or transformed to meet the needs of the future. We have to examine what changes are desirable in ministerial responsibilities and what machinery is necessary to meet the need for proper co-ordination. We deal first with problems common to the whole country: at a later stage we consider what provisions are necessary to meet the special needs of Scotland.

734. At the present time the machinery is as follows.* The universities, founded on charters, are autonomous; but their activities are co-ordinated in a broad way by the University Grants Committee, which is responsible to the Chancellor of the Exchequer. In England and Wales the Colleges of Advanced Technology and a few other colleges are administered by the Ministry of Education on a direct grant basis. With the exception of the voluntary Training Colleges (which are also financed directly by the Ministry), the rest of the system is directly administered by local education authorities, subject to general guidance from the Ministry of Education, and is financed partly from the rates and partly from taxation. In Scotland the Central Institutions are financed by the Scottish Education Department; the expenditure of the Colleges of Education is met partly by the Department and partly by the education authorities. The Research Councils, from which many scientific and technological departments receive important subventions, are the responsibility of the Lord President and Minister for Science.

735. The proposals that we have already made would alter this position substantially. We have recommended that the Colleges of Advanced Technology should have autonomous status and that primary responsibility for the Colleges of Education in England and Wales should be transferred to the universities, acting through Schools of Education. The problem therefore arises: what machinery is appropriate in future for co-ordinating the greatly enlarged autonomous sector and what is the appropriate ministerial responsibility for it?

NATIONAL OR REGIONAL ORGANISATION

736. But before we consider possible answers to these questions and propose our own solution, we must first consider another suggestion that has been put to us. It has been argued that there are too many institutions of higher education to permit a centrally administered system to work well

* There is a fuller description in Appendix Four, Part I, Sections 2, 4 and 5.

and that the entire organisation of higher education should be placed upon a regional basis. The country would be divided into appropriate areas ; and within these the universities, the Colleges of Advanced Technology, the Colleges of Education and the institutions of further education would all be administered by councils representative of the regions concerned. Such an organisation, it is argued, would provide a desirable integration of all levels of higher education and avoid the disadvantage of central control.

737. The plan has its attractions, and we admire the ingenuity with which it was expounded. But we are convinced that it is inappropriate to the needs of the situation. It would be a mistake to bring the autonomous and non-autonomous institutions under administrative authorities each limited to a particular region, for the trend has been for institutions to move from locally-maintained to autonomous status at the same time as they have begun to develop a national area of recruitment. The national needs of the autonomous bodies would be ill co-ordinated by regional bodies independent of each other ; and the administrative devices suitable to the control of such bodies would be needlessly multiplied. The regional controlling bodies would have to be constituted *ad hoc*—they would correspond to nothing in the existing structure of local government—and this in itself and the necessary co-ordination of their activities would create special financial problems. As we have said in earlier chapters, we are in favour of leaving the non-autonomous colleges in local hands. But we are not in favour of overall unification on regional lines. In the system we have recommended the institutions wholly devoted to full-time higher education, as we have defined it, are to be autonomous and we think it is possible to provide safeguards against any danger of undue uniformity that might arise from such central controls as are necessary.

A GRANTS COMMISSION

738. The core of our problem obviously is in the field of the autonomous institutions. We accept the principle that, once institutions have become almost wholly preoccupied with advanced education and research and recruit on a national basis, they are most likely to perform these functions efficiently if they are allowed as far as possible to govern themselves and develop their own policies. How then are their activities to be guided and co-ordinated so as to serve national needs and so that their respective claims on national resources may be equitably and suitably considered?

739. From the argument of the preceding chapter it will be evident that our answer to this question is to be found in what we call the grants committee principle. We believe that the principle exemplified in the present University Grants Committee, a committee independent of politics and not subject to ministerial direction, yet maintaining close contact with the organisation of government, which advises the Chancellor on the magnitude of the amounts needed and distributes the funds made available, is a principle that is generally applicable. Accordingly we recommend that it should be adopted for all the autonomous institutions.

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The case for a single body

740. It still remains for consideration how this principle should be realised. If our recommendations are accepted, there may be as many as sixty independent autonomous institutions by 1980, even if the present federal universities continue to count as one unit. For, in addition to the thirty two institutions that are already financed by the University Grants Committee, we recommend the foundation of a further six universities; and the universities' functions will be extended as the result of our proposals for Schools of Education. There are also the ten Colleges of Advanced Technology and other institutions in England and Wales and Scotland that we have recommended should in due course be administered on the grants committee principle. The question must therefore arise: should there be additional grants committees or should the existing University Grants Committee be reorganised so as to cope with the whole field?

741. At first sight the creation of additional committees is attractive and we have given considerable attention to it. The idea of separate grants committees for universities, technological institutions and perhaps for Schools of Education has the appearance of logical tidiness; and it assigns to each committee functions that should not be so large as to preclude the kind of intimate personal knowledge that has contributed so much to the success of the University Grants Committee.

742. On balance, however, we have decided to reject this solution. It is obviously necessary that there should exist somewhere an apparatus for survey and recommendation for the field of autonomous institutions as a whole; and if this function is not discharged by a grants committee, it must be discharged by central government, thereby introducing just that direct relationship between government and institutions that it is the object of the grants committee principle to avoid. We are unwilling to make a recommendation with these administrative implications.

743. It might be thought, however, that this difficulty would be overcome if there were two or three grants committees co-ordinated by a superior commission, constituted perhaps of the chairmen of the committees with a small number of others not so involved. This would indeed avoid the danger of impairing the principle. But it would involve academic and administrative divisions much too rigid to fit the facts of the institutional complex. Suppose that there were one committee for traditional universities and one for technological institutions. The problem of co-ordinating developments in technology, pure science, social studies and other fields of study that may find a place in both types of institution becomes of vital importance if national needs are to be met, if manpower and other resources are not to be wasted, and if highly specialised areas of study are to be concentrated in certain institutions. How could the total financial needs of these institutions be assessed and how could the allocation of available funds be achieved if there were a multiplicity of committees covering comparable levels of teaching and research in similar fields of study? It

would, of course, be possible to devise an intricate system of cross-membership between committees and to provide common or interlocking secretariats. But we do not think this would involve less burden on the members than co-ordination through one integrated administrative body, and we are certain that it would be less efficient.

744. Accordingly we recommend the creation of one Grants Commission responsible for the whole field throughout Great Britain*. In size and composition it should as far as possible resemble the present University Grants Committee. But in order to cover the greater variety of institutions coming within its responsibility we envisage some small enlargement of its present membership of Chairman and sixteen part-time members. In future the Chairman should be supported by two full-time deputies and perhaps twenty part-time members.

The organisation of the Commission

745. In order to reduce the burden on the Commission, and because of the scope of its work, it would be necessary for it to set up ancillary committees, some of which would include representatives of appropriate outside interests. These committees, whose chairmen would normally be the deputy chairmen of the Commission, might be of two types corresponding to those of the present University Grants Committee—first, standing committees dealing with areas of study wherever pursued (for example arts, social studies, science, technology, medicine, dentistry, agriculture and forestry, veterinary science), and, second, *ad hoc* committees, which might be formed to consider particular topics of current interest or problems affecting a particular group of institutions. We would not wish to define too closely either the number, the composition or the responsibilities of these committees: all these matters would have to be worked out and delegated by the Commission. But, if our recommendations on the future of Colleges of Education are adopted, it will clearly be necessary for the Commission to establish an education committee to be responsible to the Commission for the Schools of Education. This would be analogous to the committees dealing with other areas of study, but the range of problems with which it would have to deal, at least in the initial stages, would be wider. The Commission will doubtless consider that there is a strong case for including in the membership of the education committee some people with experience of the schools.

746. A separate education committee for Scotland would be necessary in view of the differences in organisation north and south of the Border. But we hope that in technology and commerce, where the differences in organisation are less marked, the machinery we propose would be flexible enough to take account of any distinctive Scottish problems without recourse to separate formal committees, in the same way as hitherto the University Grants Committee has functioned acceptably with responsibilities covering Great Britain.

* See paragraphs 788–791 for the special position of Scottish institutions.

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747. So far as visitations are concerned, we believe that the use of committees to cover certain areas of study could relieve the Commission of visiting all the various departments within an institution and enable it to limit the visitation to any institution to one day and to concentrate its visit on meetings with students, academic staff, senates, governing bodies and others for general discussion of the institution's problems and aspirations and of issues of national policy. But it would be highly desirable for the Commission to include Schools of Education and some of their constituent Colleges of Education among those groups with which it holds discussions during its visitations.

748. The committees set up by the Commission would be responsible for much of the appraisal and visitation of the institutions or faculties coming under their auspices and for formulating proposals regarding claims for finance. But the final task of advising the government and distributing whatever funds are made available would, of course, still be the responsibility of the Commission itself.

749. We think that in this way a single Commission can continue to serve as the intermediary between the autonomous institutions and the central government, and we attach importance to continuity in this respect. But we hope that it would be recognised that, for the Commission to work efficiently, it would be necessary for its staff and organisation to be much larger than that of the University Grants Committee. And perhaps it should be explicitly said that it is essential to our conception of the function of the Commission that its entire staff should be responsible to the Commission itself, not to the ministry that the Commission advises.

The timing of the Commission's grants

750. There is a further respect in which the mode of procedure of the Commission might well differ from that of its predecessor. We have received evidence in favour of the possibilities that the present quinquennial system* gives of planning ahead over a significant period of time; but we have also received strong representations concerning some inconvenience occasioned by the prevailing method of allotting recurrent grants. The present method of quinquennial allocation obviously fails to take account of inflationary development: in recent years there have had to be supplementary grants to meet this deficiency. But, beyond this, the present system imposes on the Committee the necessity of concentrating its visitations into an inconveniently short period in the months before the end of the quinquennium; and, although it is a great advantage to receive the views of all institutions at roughly the same time and to be able to consider them simultaneously, the inconvenience would become almost intolerable with the proposed increase in the number of institutions for which the Commission is to be responsible. Moreover, the system leaves the institutions in a state of uncertainty about the possibility of future developments as each quinquennium is approaching its end.

* The system is described in Appendix Four, Part I, Section 2.

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751. The University Grants Committee in its evidence has shown itself well aware of this problem and has formulated certain proposals for meeting it by extending the length of the allocation period. We have also received proposals for the introduction of a different system, whereby the allocations are reviewed annually and carried forward for an extra year so that the institutions always know the size of their grant for the next five years. There are technical problems involved here which manifestly should be worked out by the responsible administrative bodies. To pronounce upon them in detail would serve only to embarrass those who, in accordance with our recommendations, will in due course have the responsibility. We shall only say that we are clear that planning should always be on a basis of reasonable certainty for a significant period of time and that large-scale financial exercises on an annual basis would militate against efficiency. We have satisfied ourselves that it should be possible to devise new methods which, in addition to overcoming the weaknesses of the present system to which attention has been called, would also considerably ease the burden on the Grants Commission in the performance of its function of visitation. We recommend that the Commission, on its establishment, should immediately proceed to consider modifications of the present system and give effect to them as soon as possible.

ACCOUNTABILITY IN THE GRANTS COMMITTEE AREA

752. We now come to a point of some technicality that has a considerable bearing on academic freedom.

753. The terms of the Vote under which moneys are provided for the universities and colleges state that grants to institutions will be made on the recommendation of the University Grants Committee; and convention has established that the Treasury does not inquire into or question the Committee's recommendations as to the allocation between universities of the total amounts on which the Government has decided. Again, the Comptroller and Auditor General has not had access to the books of the universities and the University Grants Committee. No doubt having in mind the large proportion of current expenditure represented by academic salaries, which follow prescribed scales, the Public Accounts Committee has hitherto been satisfied that the methods of control of recurrent grants are a reasonable compromise between the need to maintain university independence and the exercise of financial control by the Government and by Parliament. But the closer control of capital expenditure was for long the subject of discussion between the Public Accounts Committee and the Treasury, the former claiming the right of scrutiny, the latter arguing that it would be inimical to the independence of the universities. In recent years, however, procedures have been introduced whereby, without the introduction of control from the Treasury or scrutiny from the officers of the Comptroller and Auditor General, it has been possible to satisfy the Public Accounts Committee that there exist due safeguards against improper or wasteful expenditure, a notable victory for the good sense and moderation of all the parties concerned.

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754. We attach great importance to this immunity and we are glad that the Treasury has successfully upheld it. We yield to no one in our condemnation of extravagance in the use of public money and the absence of proper accounting, and we think it perfectly proper that the Grants Commission should have the right to adopt such safeguards as are necessary to prevent abuses of this kind. But unless full confidence is placed in the Commission, rather than in a ministerial department, to exercise these functions, an important part at least of its value as a buffer disappears, and the way is open to direct intervention by the Government and Parliament in the work of the universities. Our travels abroad have convinced us more than ever of the immense value of the British system whereby detailed public justification of particular university expenditure is not required. It was the rector of one of the most famous universities in Western Europe who said, when describing to us the system under which he worked, 'so long as we are subject to these controls as regards finance, all talk of academic freedom is a swindle'.

755. We recommend therefore that, irrespective of any changes in ministerial responsibility, present policy on accountability should continue. We recommend, further, that as more institutions at present within the scope of parliamentary audit acquire autonomous status in accordance with our recommendations and come under the aegis of the Grants Commission, the same immunity should be extended to them. If our recommendations about the Colleges of Advanced Technology are accepted, their relationship to the Grants Commission and the Public Accounts Committee should be identical with the relationship of the existing universities. The Colleges of Education, as soon as they become the responsibility of the Grants Commission, should also enjoy the same measure of freedom from accountability.

756. There will remain matters of broad policy on higher education that must be the concern of the Government and of Parliament, and it is the great advantage of the grants committee principle that in all such matters the views and advice of the Government and the universities can be mutually brought to bear without detailed scrutiny of the expenditure of particular institutions. This, as experience elsewhere shows, is incompatible with that free initiative and full responsibility that it is in the national interest to preserve.

MACHINERY FOR THE SETTLEMENT OF SALARIES

757. We must also deal with a function which, although in our judgment not the province of the Grants Commission, is intimately related to matters that are very much its main concern—the settlement of academic salaries in autonomous institutions.

758. The National Incomes Commission is at present undertaking a full review of the remuneration of the academic staff of universities and Colleges of Advanced Technology in the light of the need to provide for the expansion of higher education and the requirements of these institutions in relation to other types of employment drawing on persons with similar

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qualifications. This is an *ad hoc* inquiry. The question of permanent machinery for reviewing academic salaries is not affected by it.

759. The ordinary type of negotiating machinery for the determination of salaries or wages does not meet the particular circumstances of the universities and other autonomous institutions. While it is true that the major source of funds for academic salaries is the Government, the Government is not the employer. Moreover, by definition, these autonomous institutions are institutions in which members of the academic staff have a large say in their government. But neither the present Committee of Vice-Chancellors and Principals nor the University Grants Committee nor the Treasury can assume the role of employers. A conventional pattern of negotiations is not therefore possible.

760. The difficulties of this situation have been met by the use of the University Grants Committee, with two additional members appointed for this purpose only. Since 1947 the Committee has advised the Government on university salaries, its advice being based on formal and informal discussions with the Committee of Vice-Chancellors and Principals and the Association of University Teachers. The views of the British Medical Association have also been made available to the Committee. But conditions are changing and are likely to change more rapidly if our recommendations are accepted. The universities of the future—in the enlarged sense of the term—will provide the main foundation on which the education of those entering most professions is built: the universities must therefore be in a position to attract teachers of the highest calibre if the professions are to be well served. Further, interchangeability of academic staff with other professions is, and should be, an increasingly important consideration. Academic salaries can no longer be considered in isolation; comparability must become an increasingly important factor. We suggest, therefore, that the periodic review of salary scales in the field of the autonomous institutions is not an appropriate responsibility of the Grants Commission

761. We recommend that for this purpose there should be a specially constituted independent body similar in standing and method of operation to the committee that has responsibility for advice to the Government on salaries in the higher civil service and to the committee with responsibilities in relation to doctors and dentists in the National Health Service. This body, consisting of a small number of persons of ability, judgment and of national reputation, should consider the claims of representatives of the staff of universities and Colleges of Education and any views and representations of the Committee of Vice-Chancellors and Principals or other appropriate professions and bodies within or without the university world. It should also have the advice of the Grants Commission, as well as the views of the Government. Such a body would be in a position to assess the wider considerations of comparability that will arise both within and beyond the field of education in general; it would meet the peculiar position arising where there is no clear employer/employee relationship; and it should also ease the delicate position of the Government in

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a vital problem. There would be valuable opportunities for some interlocking membership with the two existing committees we have mentioned.

762. We should, however, make it clear that, apart from the prescription of salary scales, we think it most important that responsibility for other conditions of service should rest with the institutions concerned and with the Grants Commission.

MINISTERIAL RESPONSIBILITY

763. We now have to consider which minister should be responsible for the Grants Commission. There are four main possibilities that deserve discussion: the extension to all the autonomous institutions of higher education of the Chancellor's present responsibilities for the universities; transfer either to the Lord President of the Council or some other minister without portfolio; transfer to a Secretary of State for Education, who would also embrace the functions at present exercised by the Minister of Education; and transfer to a Minister newly-created for the purpose of taking responsibility for the Grants Commission, and perhaps certain other activities of a like kind. We discuss each of these in that order. The special problems arising in connexion with Scottish higher education will be discussed later.

The Chancellor of the Exchequer

764. We have received some representations—and these from persons of high academic standing—that the Chancellor of the Exchequer should continue to be responsible for university grants; and we ourselves are anxious that nothing that we say should detract from appreciation of the benefits that flowed from this arrangement in the past. Given the state of public opinion and the policy on higher education in general at that time, we think that the universities and the University Grants Committee have fared reasonably well. Indeed, contrary to extreme opinions sometimes ventilated in public, we think that, within the limits of public opinion and general policy, the position was at least as good as it would have been under any other minister then existing. A succession of civil servants responsible for advising the Chancellor on this part of his functions made it their business to see that the institutions ultimately committed to their care were not prejudiced by the obvious peculiarities of the position.

765. Nevertheless, we do not believe that this position can persist. We have been made aware that, as the size of the annual grant to universities increases—it is already about £100 million—Treasury officials themselves are more and more conscious of the anomaly of a state of affairs in which they, whose normal function it is to be guardians of the public purse, in this capacity are claimants on it. We think that in future it will be increasingly hard for the Chancellor effectively to sustain these two roles in Cabinet; and indeed one of the intrinsic difficulties of the present position is that, burdened as he is with a host of other responsibilities, it is hard to believe that he can devote to the largest sector of higher education the time or initiative in ministerial discussions that its national importance now demands.

766. But there is a stronger argument for change. Hitherto the Chancellor and his advisers have been responsible only for existing universities. It is

impossible in the nature of things that they should be able to assume similar responsibilities for yet other institutions of higher education. These have never come within their scope as fostering guardians; they have been concerned with them rather as claimants for limited public money. It would be too much to expect any Chancellor and his advisers, however talented and devoted, to achieve a view in which all the complex educational problems involved in this larger field received adequate consideration.

767. This is an immediate problem. If our recommendations about the Colleges of Advanced Technology are accepted and they are granted the status of technological universities, then, as we have argued above, their relationship to the Government should be the same as that of existing universities: they should be administered on the grants committee principle. But we have been definitely informed in evidence that the Treasury would not feel it appropriate to assume responsibility for additional institutions. In that case any hope of a unified responsibility under the Chancellor for these branches of higher education, still more any hope of a unified policy, must be frustrated.

The Lord President of the Council

768. In recent months, perhaps as much because of disappointments in 1961 and 1962 with Government decisions on university finance as because of any far-reaching disquiet with the present machinery of government, there have been suggestions that the Lord President of the Council or some other minister without portfolio should assume responsibility for the universities.

769. Such a transfer is of course technically possible. It would eliminate the anomaly of the present position whereby one and the same minister is both judge and suppliant. Moreover the Lord President's responsibility for the Research Councils suggests the possibility of a similar relationship here.

770. Nevertheless we doubt whether this solution is satisfactory. In the past, at any rate, ministers without portfolio, such as the Lord President or the Chancellor of the Duchy of Lancaster, have been appointed largely with a view to their special relationship to the Prime Minister. They have been free from specific responsibilities and available for the numerous *ad hoc* duties which necessarily arise in the conduct of public business. It is obviously necessary that there should be ministers to discharge such functions. But we doubt whether they can be combined with the positive duties, demanding a high degree of concentration, which responsibility for higher education would involve.

771. Moreover it must be remembered that the absence of an organised office that, by definition, is characteristic of the position of any minister without portfolio, must itself be a severe disadvantage in handling matters of this sort. It is true that the existence of the Grants Commission will mean that little detailed administrative work will fall on the responsible government department. But that department will have the important function of assessing the advice received and presenting claims in competition with claims from other departments. For continuous business of this sort,

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a small personal office, however ably and devotedly staffed, is not enough ; and the Lord President, in that capacity, has no accounting officer. Of course these deficiencies could be redressed : a departmental organisation could be erected to serve the Lord President. But in the process the nature of the office would have changed ; and, in contemplating the result, one would in fact be contemplating another alternative.

772. For these reasons we do not recommend giving responsibility for the Grants Commission to a non-departmental minister.

A Secretary of State for Education

773. Much more radical is the proposal that there should be a Secretary of State for Education who would assume responsibility both for the Grants Commission and for those functions at present exercised by the Minister of Education. This would mean that, in England and Wales, the whole field not only of higher but of school education would be consolidated under one control. There are weighty arguments in favour of this solution.

774. First, it is claimed that it would facilitate a unified survey of educational problems in all their aspects. In the formulation of policy there would be no danger that important sectors would be overlooked.

775. Secondly, it is claimed that it would involve unified control. A ministry that dealt with higher education as a whole, as well as with the rest of the education service, would be able to solve the problems of co-ordination between the various sectors as they arose and, in particular, the relation between the output of the Colleges of Education and the schools' need for staff. It would ensure the proper interconnexion between different policies. It would also facilitate mobility of students throughout the system. The allocation of funds would be on a common vote ; co-ordinated arrangements could be made for salaries and for pensions ; education would be represented in the Cabinet by one powerful voice, thereby enhancing its prestige in relation to other services.

776. Thirdly, it would tend to encourage a sense of common purpose between all engaged in various parts of the system. The humblest primary school would feel engaged upon a common enterprise with the most eminent of the universities. There would no longer be any irrelevant sense of difference of status between different types of institution.

777. Finally, it is argued, the history of the Ministry of Education, which might provide much of the Secretary of State's staff, has proved its capacity in matters of this sort to take long views and vigorous initiatives. Any fair observer must admit that, in forwarding the various branches of higher education with which it has been concerned, its record has been outstanding, both in fostering existing institutions and in willingness to experiment with new developments. This is an aspect of recent administrative history that has not yet received the recognition it deserves.

778. Nevertheless, after giving the most earnest consideration to these arguments, we do not recommend this solution : we are not in favour of the

amalgamation of all responsibility for education under one minister.* There are a number of reasons for this.

779. In the first place, we consider the area of responsibility to be too wide. The methods and problems of higher education, especially in the senior reaches, differ considerably from the methods and problems of education in the schools; and we think that a proper articulation of the machinery of government should recognise these differences. It is quite true that the number of officials involved is such that the amalgamation in the new ministry of the functions at present discharged at the Treasury and the Ministry of Education would not make it unduly large. But our scruples are not a matter of office organisation. They are a matter of focus of attention, and it is our contention that there is a danger that both kinds of education are less likely to receive the attention they deserve if they are the responsibility of one minister and ministry rather than two.

780. Our objections in this connexion go beyond matters of scope and substance: they concern also matters of administrative style. The co-ordination of autonomous institutions through grants committees involves administrative methods very different from those required elsewhere in the educational system. We should hesitate to agree with all the arguments whereby many university teachers express their intense reluctance to see the universities come within the same framework as the institutions for which the Ministry of Education is at present responsible; for some of them are obviously prejudiced or rest upon complete misapprehension—the fear, for instance, that the University Grants Committee would be liquidated. But they also rest upon the belief that the preservation of the delicate balance on which the success of the grants committee principle depends must involve a feeling for the reins almost different in kind from that involved in other kinds of administration; and in this respect we think they have considerable substance.

781. Furthermore—and this is a consideration that weighs with us greatly—it must always be remembered that the business of the main institutions of higher learning is not only education: it is also the advancement and preservation of knowledge. There can be no doubt of the vital importance of research; and, as we have argued at length earlier, the evidence we have received confirms the view that it is essential that much research should be domiciled in institutions of higher education. Research, interpreted in a large sense, has parity of importance with teaching; indeed the latter loses vitality if the former is absent. If therefore the solution of the problem of responsibility is to turn on the existence of organic connexions, we should argue that the organic connexion of the universities with other forms of organised research is even closer than their connexion with the work of the schools, important though that is, and that it was the connexion with research that was most suitably recognised in the allocation of ministerial responsibility.

* See page 293 for Mr. H. C. Shearman's note of reservation.

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A Minister of Arts and Science

782. The differences between higher education and education in the schools might suggest that the solution to our problem would be the creation of a ministry that, like the Ministry of Higher and Specialised Secondary Education in the Soviet Union, embraced all the area in which advanced full-time studies take place, from the universities to the Area Colleges, or indeed all post-school education.

783. At first sight it might seem that these possibilities had much to commend them, in that they would bring all the institutions considered in this Report under one ministerial responsibility. But on closer consideration we do not find them so attractive. If we assume that our recommendations for the organisation of Colleges of Education in university Schools of Education are accepted, then what remains in the non-autonomous sector are the technical and other colleges of further education; and, although we contemplate the eventual transfer of some of these to the autonomous sector, the predominant role of most of the technical colleges is local and regional rather than national, and concerned as much with part-time as with full-time study. Although we believe that the government of individual colleges could be improved on the lines suggested in Chapter XV, we think that administrative convenience and efficiency dictate that they remain where they are in the structure of central and local controls and we see no grounds of principle against it. We shall discuss later a means whereby the advanced work done in these colleges may be related to that in the autonomous institutions.

784. We propose therefore a ministry responsible for a more limited range of institutions of higher education. We recommend the creation of a ministry whose main responsibility is for the autonomous institutions—the institutions that, if our recommendations are accepted, are suitable for control on the grants committee principle. But following the thought developed in paragraph 781 above, we suggest that it would be a most felicitous conjunction if this ministry were also charged with responsibility for other autonomous state-supported activities that are at present administered on principles resembling those of the grants committee. Here we have particularly in mind the Research Councils and the Arts Council; but there are also other bodies designed to forward learning and the arts, such as the Standing Commission on Museums and Galleries, that it might be thought right to bring within the same administrative framework. We of course appreciate that the question of ministerial responsibility for these bodies raises important questions for them and those who depend on them, and we have not attempted to consider these. But from the point of view of higher education, such an arrangement would seem most fitting. In this way administrative recognition would be given to the essential unity of knowledge; and the nature of the administrative tasks involved would be such as to blend well in a common departmental tradition. Since much of the work would be done through grants committees, the whole would tend to be informed by the special degree of detachment and respect for the autonomy of the institutions and individuals ultimately concerned

that is so necessary if the connexion of the State with creative activities is to be a quickening rather than a deadening influence. To emphasise this focus we venture to suggest that the appropriate name for such a ministry would be, not the Ministry of Higher Education, but the Ministry of Arts and Science. It would then naturally assume the present responsibilities of the Lord President in his capacity as Minister for Science.

785. We believe that, quite apart from its function in providing an appropriate apex to the structure of autonomous institutions of higher education, the creation of such a ministry would solve simultaneously a number of problems. It would recognise the importance to the spiritual health of the community of a proper organisation of state support for learning and the arts; and it would underline the relationship between the universities and Colleges of Advanced Technology and the other organisations in this field. But, operating as it would through the Grants Commission, it would avoid the dangers rightly associated with Ministries of Culture which elsewhere attempt directly to regulate and administer these activities.

786. In arguing thus for a ministry separate from the department with responsibility for the schools and the locally-administered institutions of further education we know that we shall disappoint some with whom we share many common ideals and aspirations; they will claim that we are ignoring the links between the work of the autonomous institutions and the rest of education and running the risk of a failure of co-ordination throughout. We respect this view; but we are convinced it is mistaken. We have given already our reasons for believing that, so far as administrative methods are concerned, the natural affiliations of the autonomous institutions are with the Research Councils and similar bodies. But this in no way implies unawareness of the need for full and effective co-ordination of policy throughout the whole field of education: it implies indeed an active concern therewith. If we thought that this was impossible under the machinery we have proposed, our recommendations would have been different. But we are convinced, and we hope to show, that it is not. The series of committees and common advisory and consultative bodies that we shall recommend below should meet this need.

787. People sometimes speak as if the machinery necessary for co-ordination would be unnecessary if there were only one ministry. We do not agree. If there were only one ministry, internal consultation within the ministry, and between representatives of the autonomous institutions and the rest, would still be necessary; and the standing committees and special working parties would still have to exist. The main difference would consist in this: whereas with a single ministry, in the event of conflict, the right of appeal would be only within the walls of the department, with two ministers it would reach the Cabinet or at least a Cabinet committee. And, from our point of view, at this stage in the evolution of the educational system, the latter possibility would be a definite, indeed an indispensable, advantage. The contribution which the autonomous institutions have to make is so important that it must have separate articulation. In

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the last analysis it is just this possibility of independent appeal from the ruling of a single minister to the supreme policy-making authority that is to be regarded as an essential guarantee of the status and liberties of the autonomous institutions. It equally provides a safeguard for the well-being and development of further education and of the schools. In our judgment, quite apart from the other important advantages we have enumerated, this consideration must justify the existence of separate ministries.

THE SPECIAL POSITION OF SCOTTISH INSTITUTIONS

788. Nothing we have said on this score must be held to derogate from the need for effective co-ordination. We shall revert to this later, after we have discussed the special position of Scotland: for while the Grants Commission will have responsibilities throughout Great Britain, some adaptation in the machinery we have described will be required to take account of the special position of Scottish institutions.

789. At present the Scottish universities and the Royal College of Science and Technology, Glasgow (whose charter is shortly to be laid before the Privy Council) are financed through the University Grants Committee: the transfer of responsibility for grants from the Chancellor to the Minister of Arts and Science need not affect this connexion. Arrangements should be made to ensure that, on questions of particular concern to the Scottish universities, the views of the Secretary of State for Scotland continue to be taken into account.

790. But when we extend our view beyond the universities, we have to recognise that the Colleges of Education and the Central Institutions occupy an important place in what is essentially a Scottish system of education and that effective links must be preserved between them and the Secretary of State. We have already recommended that the Grants Commission should establish a separate committee responsible for the Scottish Colleges of Education. We also recommend that, when the Scottish Colleges of Education and any of the Central Institutions come within the responsibility of the Grants Commission, a way should be found of associating the Secretary of State with the Minister of Arts and Science in the consideration of matters arising from any advice given by the Commission relating to these institutions.

791. Such Scottish institutions as are not considered eligible for the autonomous area should continue to receive grants direct from the Scottish Education Department. Any transfer of particular institutions to the autonomous sector that seems appropriate in due course would clearly, as in England and Wales, be a matter for consultation between the Grants Commission and the government departments. We envisage that the Council for National Academic Awards will operate throughout Great Britain and its advice will be available on Scottish institutions ripe for elevation, as on their English and Welsh counterparts.

CO-ORDINATION AND LIAISON

792. We must now consider the important problems of co-ordination of the system of higher education as a whole and its relationship with the schools. In choosing between possible assignments of ministerial responsibility for the Grants Commission and the autonomous institutions, we have rejected the overall responsibility of a Secretary of State for Education and recommended a separate Minister of Arts and Science. But, as we have emphasised already, this did not mean that we were at all indifferent to the need for adequate co-ordination of all the various branches of education, which would arise whatever the division of responsibility between Ministers. This need arises at two levels: at the level of high policy, where the general educational provision for the country as a whole can be surveyed, and at the level where what is done in the autonomous institutions reacts upon other branches of education; and at both levels we attach great importance to its being adequately met.

High policy

793. At the former level, it is clear that policy can only be determined by consultations between the ministers concerned. It is not for us to recommend how in this respect the business of government should be conducted. But we suspect that some kind of standing committee may be found to be appropriate. And whatever is done on this plane, it is obvious that, for the guidance of ministers, continuous consultation will be needed between the officers of the different ministries and the Grants Commission, advised where necessary by the advisory bodies described below. We need not elaborate here the apparatus of inter-departmental consultation. Once the need for the formulation of general policy and the co-ordination of ministerial responsibility is recognised, the necessary machinery is something that the departments concerned can readily construct.

794. It remains, however, a matter for consideration whether, apart from the official machine, there should be some other powerful organ capable of surveying the needs of higher education as a whole and its relations with the schools and of tendering advice to ministers.

795. We are clear that no useful purpose would be served by the creation of a general advisory committee. The history of advisory committees of of this sort is often unhappy. Devoid of specific duties or executive responsibilities, their activities can easily become unrelated to the practical business of government. They can become academic in the bad sense of the word—a fifth wheel on the administrative coach.

796. Nevertheless there are likely to arise from time to time problems requiring for their examination an outlook more comprehensive and perhaps more detached than that of the individual departments or the Grants Commission; and to deal with these we think that something more continuous in its existence and representative in its composition than a series of *ad hoc* committees is called for. We have in mind, for instance, the problems arising from the emergency of the next few years with which

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we deal in the next chapter, or the assessment of the progress in implementing the various recommendations made in this Report. We think that it would be useful both for ministers and for the departments if there were a body they could consult on major questions of this sort and entrust with special investigations. It would also be a great advantage to have available an authoritative and permanent body that could be asked from time to time to review the whole of higher education as well as its relations with the schools.

797. Accordingly we recommend that the three ministers concerned should establish a Consultative Council, to which they could remit questions covering this whole field. Its numbers should be small: we should regard anything over twenty as too large. It should be composed of persons drawn from the various branches of learning and education, appointed for the personal contribution they could make and not in any way as delegates; there should also be some persons drawn from other walks of life. Such a body will be able to fulfil many functions and should become one of the permanently valuable instruments of the machinery of government.

Functional advice

798. At the level of administrative action, a series of committees will be needed to facilitate co-ordinated action in specific fields. There are three main areas where provision of this sort should be made.

799. First, it will be necessary to ensure that such advanced work as is carried on in the Regional and Area Colleges is properly co-ordinated with advanced work elsewhere. The Council for National Academic Awards, with its powers to approve courses and to sanction examinations for degrees, will be in a position at once to promote uniformity of standards in advanced work and to give encouragement to institutions providing it. Its members should be appointed jointly by the Minister of Arts and Science, the Minister of Education and the Secretary of State for Scotland. Since it would be an independent body it would be able to advise all three ministries: we are informed that there is no constitutional objection to such an arrangement and we think it would work well in practice. The Council would have an important part to play in relation to institutions that it was desired to foster to eventual autonomy for, although the decision in such cases must rest with the Grants Commission and departments of government acting in consultation, the Council by virtue of its representative composition would afford a guarantee that institutional as well as national needs were taken into consideration.

800. Still in this field of liaison between various branches of higher education, there will continue to be a need for the National Advisory Council on Education for Industry and Commerce and the bodies advising the Minister of Education on specific problems in the field of further education. In future they should where necessary advise all the ministries concerned and include representatives from the autonomous institutions and the Grants Commission, since professional education will continue to be provided both in universities and in institutions of further education.

801. Secondly, arrangements will be necessary for discussion between the autonomous institutions as a whole and the schools of such matters as curricula and entrance requirements. The proposed Schools Council mentioned in Chapter VII and the reconstituted Committee of Vice-Chancellors and Principals recommended in Chapter XV will provide machinery out of which a method of joint discussion for common problems can be more easily devised than in the past.

802. Thirdly, arrangements will continue to be needed for ensuring that the needs of the schools for teachers are considered alongside the plans for the development of universities and Colleges of Education. An important advantage of our recommendations in this chapter will be that in future it will be possible to consider together, within the framework of the Grants Commission, the development of universities and Colleges of Education. But there will clearly be a continuing role for the National Advisory Council on the Training and Supply of Teachers, a body that should advise both departments concerned with education in England and Wales. In addition, the Ministry of Education will be represented on the governing bodies of Schools of Education and on the appropriate education committee of the Grants Commission.

803. In the preceding paragraphs we have dealt in the main with England and Wales only. But corresponding arrangements should of course also obtain in Scotland.

Educational research

804. There is a further area in which joint enterprise is desirable. The University Grants Committee is paying increased attention to the development of educational research in the universities, with particular reference to research into the many aspects of higher education. The Ministry of Education and the Scottish Education Department have also become increasingly active in this field, and are making finance available for some important projects. The various agencies concerned in the future machinery of government that we have recommended should work together in developing this research and ensure that there is no avoidable duplication of effort. We hope that the private foundations, who have taken splendid initiatives in the past and who now are faced with a growing number of calls upon their resources, will play a big part.

Statistics

805. In conclusion we wish to draw attention to the importance for the formulation and carrying out of appropriate educational policies of a continuing supply of relevant and comprehensive statistical information. This is essentially a field in which it is impossible to form appropriate conceptions if a sense of quantitative perspective is lacking; and the information on which such a perspective must be based is so extensive that it requires expert analysis. We have uncovered major gaps in the information hitherto available; and although our advisers, in collaboration with government statisticians, have accomplished great feats in assembling

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new series of statistics, it would be a great pity if the work thus started were not continued. Indeed, if the changes implied in our various recommendations are to be effectively carried through, it is essential that it should go on.

806. It is not for us to prescribe the precise form that the collection and analysis of the relevant statistics should take, nor the organisation of the statistical work in relation to various government departments and other agencies. But we are concerned that statistics relating to education as a whole should in future be collected on a common basis and that the organisation of statistical services should facilitate research into problems that may overlap departmental boundaries: we discuss the scope of future statistics in more detail in Appendix Four, Part II. We should be failing in our duty if we were to close this chapter without emphasising with all the force at our command that the erection and continuation of an adequate statistical service is an essential condition of the successful working of all the machinery we have recommended.

CHAPTER XVIII

The short-term emergency

807. Before we come to our final chapter we must turn to an immediate problem which, although it is not strictly within our terms of reference, we cannot ignore. Our terms of reference concern the long-term development of higher education; but in the years from 1965/5 to 1967/8 we are faced with an emergency which, if it is not adequately met, may well frustrate our recommendations for the more distant future.

THE NATURE OF THE CRISIS

808. In these years the very large numbers of boys and girls who were born just after the war will reach the age of entry to higher education. Their numbers are so great as to make it certain that those qualified and wanting to enter higher education will far outnumber the places that, on present plans, will be available for them: institutions will suddenly be faced with pressures almost different in kind from those that they have faced hitherto.

809. Since we were appointed, plans have indeed been announced for the further expansion of the universities, the Colleges of Advanced Technology, and the Training Colleges. But these plans will not provide enough places to meet the demand. This imminent crisis has cast a sombre shadow on our deliberations. It threatens to be so severe, and so damaging, not only to the young people concerned but also to the schools and to the higher education system that we are compelled to comment on it.

810. The young people who will be seeking to enter higher education in the years 1965/6 to 1967/8 were born in the period when the population of this country was beginning to return to normal life after the upheavals and separations inevitable in war. The trials that their parents had to undergo are in themselves sufficient reason for the country to exert itself to meet the needs of their children. Moreover, if great numbers of these young people are qualified and eager to enter higher education it would be gravely unjust that, simply because so many were born at the same time, a smaller proportion of those qualified should receive higher education than in the age groups coming immediately before or after them. If they are denied the opportunity of higher education they will have good reason to feel frustrated and dissatisfied. Further, a chance will have been lost to make good some of the shortages of qualified people, including the acute shortage of teachers for the schools.

811. It is clear to us also that the rejection of large numbers of these young people might well adversely affect the expansion we have recommended. Their younger brothers and sisters might be reluctant, when their turn came, to consider entering higher education and to risk the disappointment of refusal after the years of hard preparation in the sixth form. If the

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worst were allowed to happen, it is even conceivable that the sixth forms in our schools might begin to dwindle and some of the benefits of post-war progress in education be lost. Moreover, the young people who had been deprived of higher education would marry and bring up their children in family backgrounds less educated than they might have been. We have shown in Chapter VI that family background is a powerful influence in determining a child's educational career; thus it might easily come about that the life of the community was impoverished for many years to come.

812. The nature of the immediate problem is evident from the figures of probable demand for places shown in Table 59. These have been calculated on the assumptions set out in Chapter VI. We thus make no allowance for the possibility that an increasing proportion of qualified school leavers may apply for higher education during this period. More important, we allow for no increase in the proportion of qualified school leavers who are admitted, despite the fact that over the last five years the proportion admitted to universities and Training Colleges has been steadily falling, as competition for entry has intensified.

TABLE 59
Number of students for whom places will be needed in full-time higher education
Great Britain 1962/3-1967/8

			Thousands		
			Universities	Other higher education	All higher education
1962/63	...	...	133	86	219
1963/64	...	...	143	95	238
1964/65	...	...	157	105	262
1965/66	...	...	174	116	290
1966/67	...	...	187	125	312
1967/68	...	...	197	131	328

Source: See Appendix One, Part IV, Table 53.

- Notes: 1. Figures for universities include Colleges of Advanced Technology and, in Scotland, the Heriot Watt College and the Scottish College of Commerce.
2. These estimates, like those in Chapter VI, are based on the assumption that entry standards remain as in 1961/2.
3. The actual number of students in 1962/3 was 216,000: this is 3,000 less than the number of places needed to maintain entry standards as in 1961/2.

813. As in Chapter VI, our estimates are based on the assumption that overseas students will continue to form some 10 per cent. of the total number of full-time students.* There is no reliable evidence on which to base our estimate of the demand from overseas students. But, in the short term at least, all the signs are that it will grow, although it does not follow that it will—or should—grow at the same rate as the demand from home students, because the home demand in those years will be the outcome of factors that have no necessary parallel overseas. But, even if the demand from overseas students did not increase at all between now and 1967/8, the figures for university places needed in that year, shown in Table 59,

* The percentage is taken as constant in each type of institution.

would only be reduced by 7,000.* Individual universities may feel obliged to restrict the number of overseas students they admit if other methods of easing pressure fail. But in general we are sure that such a policy would be as unwelcome to the universities as it would be to us. With this in mind, as well as the already excessive degree of competition for university entry, we are satisfied that the estimates in Table 59 represent the minimum that should be provided. In the five-year period from 1962/3 to 1967/8 the number of university places will need to grow by nearly 50 per cent.

814. The authorised plans for the universities are designed to allow for 150,000 places by 1966/7 and 170,000 places in 1973/4. The plans for Colleges of Advanced Technology allow for 15,000 places in 1966/7 and 21,000 places by a date that will be dependent on capital investment after 1963/4. For Training Colleges in England and Wales authorised plans allow for 80,000 students in general and specialist colleges in 1970/1.† The plans for the expansion of the universities, the Colleges of Advanced Technology and the Training Colleges have not been announced on a year-by-year basis; they have been fixed as target figures for particular years. Tables 60 and 61 give estimates of the stages that this expansion, together with that of Scottish institutions, is likely to have reached in particular years. The estimates for universities and Colleges of Advanced Technology are based on present plans, not on their potential capacity if adequate

TABLE 60
Authorised plans for places in full-time higher education
Great Britain 1962/3 and 1967/8

	Thousands		
	1962/3 (actual)	1967/8	Percentage increase 1962/3- 1967/8
Universities	118	153	29
Colleges of Advanced Technology ...	10	17	65
Colleges of Education			
England and Wales	49	75	55
Scotland	6	8	27
Further education			
England and Wales	28	45	59
Scotland	5	5	18
All full-time places	216	303	40

Source: 1962/3: See Appendix Two (A), Parts I, II and III.
1967/8: Government Departments

- Notes: 1. Places shown are rounded to the nearest thousand. The percentages in the final column are based on the unrounded figures of places. In Scottish further education the number of places is 4,500 in 1962/3 and 5,300 in 1967/8. These figures include Heriot Watt College and the Scottish College of Commerce.
2. Figures for further education in England and Wales assume that growth in this sector will be at the same rate as in the last six years. There is no official sanction for any specific target.

* In other full-time higher education the reduction would be 3,000 places.

† To which should be added some 2,000 places for the Technical Training Colleges referred to in Chapter IV, paragraph 72.

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financial support were available. Plans for the Training Colleges in the next few years are largely determined by their capacity to expand. There are no authorised figures for further education in England and Wales, other than in the Colleges of Advanced Technology, that are comparable with those for the other sectors, because of the extent to which accommodation is interchangeable between full-time and part-time students and between advanced students and others. For this sector we have assumed that growth will be at the same rate as in the last six years; this is only an estimate of possible capacity, given adequate financial support.

815. Table 61 sets side by side the estimates of demand and of capacity in universities and other institutions. The size of the problem is at once revealed. In 1966/7 there will be 19,000 places short in universities and in 1967/8 25,000. To what extent the shortage will fall in departments of science and to what extent in arts departments depends on whether the swing towards science in the sixth forms, apparently halted in the last few years, is resumed. If it is not, then in 1966/7 there will be a shortage of nearly 14,000 places for arts students. Even if two thirds of the extra demand between now and 1966/7 is in science and technology, the universities in that year will still be lacking nearly 8,000 places for arts students. Table 61 also sets out the shortages in the Colleges of Education and further education up to 1967/8, assuming the persistence of present propensities to apply to these sectors. In higher education as a whole the total shortage in 1966/7 will be 20,000 places and in 1967/8 25,000 places.

TABLE 61
Places needed in full-time higher education compared with places now planned
Great Britain 1962/3-1967/8

					Thousands		
					Places needed	Places planned	Shortfall
Universities							
1962/63	...	...	...	...	133	130	- 3
1963/64	...	...	...	...	143	138	- 5
1964/65	...	...	...	...	157	148	- 9
1965/66	...	...	...	...	174	157	-17
1966/67	...	...	...	...	187	168	-19
1967/68	...	...	...	...	197	172	-25
Other higher education							
1962/63	...	...	...	...	86	86	—
1963/64	...	...	...	...	95	94	-1
1964/65	...	...	...	...	105	104	-1
1965/66	...	...	...	...	116	115	-1
1966/67	...	...	...	...	125	124	-1
1967/68	...	...	...	...	131	131	—

Source: See sources to Tables 59 and 60.

- Notes: 1. Universities in this table include Colleges of Advanced Technology and certain Scottish Central Institutions, as in Table 59. (The latter will provide about 1,500 places by 1967/8.)
2. These estimates are based on the assumption that entry standards remain as in 1961/2. The figures in the final column indicate the total shortage of places in each year, and not only the shortage for potential entrants in that year.

The short-term emergency

816. Although other institutions will have a vital part to play in this period, the crisis, as Table 61 shows, is essentially an acute shortage of university places. It is imperative that action be taken at once, action that is both equal to the dimensions of the emergency and fully compatible with the long-term recommendations we have made.

MEETING THE CRISIS

817. As Table 61 shows, the present target figure for the universities (including the Colleges of Advanced Technology and their Scottish counterparts) is 168,000 places in 1966/7. To meet the crisis a further expansion of the order of 10 per cent. of this figure will be needed. We are confident that the universities can meet this deficiency if they are given a clear statement of the national need and if they have adequate resources and adequate assurance that any sacrifices that they have to make will be of limited duration. The proviso is all-important, for it must be recognised that the universities already have cause for lack of confidence in the Government's intentions. In the last few years the universities have wished to go forward more rapidly than they have been enabled to do. The many representations made in recent years to ensure that their resources should match the rising demand have met with an inadequate response. Neither capital nor recurrent grants have been sufficient. In the past, when they have had confidence that resources would be available, the universities have given ample demonstration of their willingness to respond to calls upon them. In present circumstances, therefore, positive assurance is needed that sufficient funds will be available forthwith, both to meet the short-term problem and to prepare the way for the long-term development we have recommended. Unless it is given, we fear the universities may well have some inhibitions in facing the difficulties of a situation for which they have not been enabled to equip themselves in advance.

818. We can think of no more practical way of providing such assurance than an immediate announcement that a substantial increase will be made in the existing capital building programmes for 1964 and for succeeding years. We have stressed in Chapter XIII the urgent need for more residential accommodation for students. More accommodation, for teaching and especially for residence, is a prime essential to meet this crisis. Most universities have development plans whose execution could be accelerated immediately; and nothing could indicate more clearly a determination to meet the coming emergency than an undertaking that additional finance would be forthcoming both for an acceleration of present plans and for any further increases that may be needed over and above such plans. What form these increases should take, whether permanent buildings additional to those already in contemplation can be made available in time or whether temporary accommodation of one kind or another will be necessary, are questions that may be differently answered in different places. And new buildings, when completed, must be made effective by appropriate increases in recurrent grants.

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819. Accommodation, essential though it be, is not everything. More teachers will be needed. As we have said in Chapter XII, we think that there will be considerable difficulty in finding enough suitably qualified teachers to meet all the needs of this period. Some easing of the strain may be effected through the re-appointment on a special basis of suitable and willing teachers who have reached the retiring age, the increased recruitment of part-time teachers, the use of postgraduate students for certain duties and the provision of more technical and secretarial assistance. But whatever measures can be taken to augment the teaching force, the emergency will inevitably impose extraordinary burdens on teachers in the way of additional duties and strain. We believe that these will be accepted as the additional duties and strain of the demobilisation period were accepted after the war. But two conditions must be satisfied. First, it must be understood that any inroads on present standards must be transitory and will be redressed as soon as possible. Second, there must be adequate recurrent grants to make possible all necessary measures, and, if the universities cannot find all the additional teachers needed, to provide supplementary remuneration for those teachers on whom fall extraordinary additional duties.

820. It is not our purpose in this context to make detailed suggestions for possible methods of improvisation. These are clearly matters for the individual institutions concerned. There are, however, two expedients to which we hope that special consideration will be given. The first is the establishment of evening courses for first degrees, which would be attended by an additional cohort of students. Universities in big cities, where there are large numbers of young people living within reasonable travelling distances of a university, are the most obvious centres for such initiative. Some famous university institutions offered such courses in the pre-war period, in the days when grants for full-time study were far less readily available than they are now, and did so with great success. The Colleges of Advanced Technology already have long experience of evening courses. Such courses are normally spread over a longer period than full-time day courses, but to meet the coming emergency a more compact form of course would be needed, with study during the day as well as evening instruction; and suitable grants would be needed for young people engaged in courses arranged in this way.

821. The second expedient that we think may prove practicable and of considerable potential value in this emergency is the establishment by some universities of correspondence courses. Here we draw on what we saw and learned in the Soviet Union.* It would be necessary to ensure that the numbers registered for any particular course were such that the university teachers concerned could maintain proper contact with their students throughout the course and give them intensive teaching in the university itself in the summer vacation period. We think it likely that television, as a technique of educational communication, may be found to have considerable potential value as an ancillary both for part-time and correspondence study.

* See Chapter V. Correspondence courses in the Soviet Union are supplemented by periods of full-time attendance at a centre of higher education.

822. If, despite the greatest efforts that can be made, pressure on the universities in these years is such that a number of qualified and acceptable applicants are turned away, many of them will be disheartened, but some will apply elsewhere. The Colleges of Education have before them already an enormous programme of expansion in the years up to 1970. It would therefore be unrealistic to suppose that they would be able to admit in the years up to 1967/68 any but relatively small numbers in addition to those already planned for. But some of the qualified young people who do not get university places, especially those who want to study science and technology, may find places in the Regional and Area Colleges and Scottish Central Institutions. Although we are clear that an expansion of places for full-time students in these colleges, even at the same rate as in recent years, will not provide any significant surplus to meet a shortage of university places, the wide range of the colleges' work and their combination of full-time with part-time courses make them inherently flexible in response to sudden demand and they have a fine record for the energy and speed with which they accept new burdens.

823. We consider it essential that such young people as are following courses at degree level outside the universities should receive an appropriate academic award on successful completion of the course. It is necessary therefore that the Council for National Academic Awards, which we have recommended in Chapter X as having an important part to play in the future of higher education, should be established in time to deal with the years of crisis. And, while it is plain that the number of students in Colleges of Education pursuing courses for degrees will be small in the immediate future, it is also plain that no time must be lost in pressing on with the arrangements proposed in Chapter IX.

824. But we must guard against possible misconception here. We attach prime importance to the aim, set out in Chapter XI, of maintaining, and when possible increasing, the size of the university contribution to higher education. We cannot assert too strongly that if, in the immediate future, other sectors of higher education afford some temporary easing of pressure, this can only be marginal: it is essential that government planning for the universities should proceed on the basis and on the principles we have outlined in earlier chapters.

825. During this period of crisis a national information service about opportunities in the whole of full-time higher education, which would work in close conjunction with the Universities Central Council on Admissions and the clearing house for Training Colleges, will be needed as an aid to young people, their parents and the schools. It should therefore be established immediately. Although existing organisations may be able to carry out much of the work, the Government must take the initiative in co-ordinating it. We think that such a service would be of permanent value.

826. This last point only illustrates the general need for immediate governmental action. In the preceding chapter we have recommended various changes in the machinery of government. The imminence of the difficulties we have been discussing makes the speedy execution of these measures all

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the more necessary. We urge that there should at once take place the inter-ministerial and interdepartmental consultations that are necessary to concert measures to deal with the crisis. We urge further that in the immediate future there should be some special initiative whereby the ministries concerned, the University Grants Committee, the Committee of Vice-Chancellors and Principals and representatives of other relevant associations are grouped together for appropriate consultation. This initiative we think should be supplied by the immediate appointment of a Minister of Arts and Science to act in the first place as a co-ordinating minister. He would assume ministerial headship of the new department of Arts and Science as soon as it could be established. Finally, we should regard it as a happy omen if the Consultative Council whose creation we have recommended could also be brought into action forthwith: an independent appraisal of the various measures under preparation would be at once helpful to the administration and reassuring to the institutions of higher education and the public. We regard the difficulties to which we have drawn attention as comparable in kind with the difficulties which confronted the educational system at the end of the war. The problems were solved then and they can be solved now: but only if there is a definite lead from the centre with advice from the appropriate quarters.

827. The strain that will fall on the institutions of higher education in these years of emergency will inevitably be heavy. But if the time is used to the full in pressing ahead with a major expansion, this will constitute an invaluable beginning to the long-term development that we recommend. The first steps will be hardest for all concerned. If they are taken with energy and determination, attainment of the long-term goal will be very much easier. If they are not, it may be disastrously delayed.

CHAPTER XIX

Conclusion

828. Our Report began with a statement of guiding principles. It postulated the need for a co-ordinated system of higher education ; and it laid down the requirements that the system should provide for those who had the qualifications and the willingness to pursue higher education ; that it should ensure equal academic awards for equal performance ; that it should eliminate artificial differences of status and recognise hierarchy only in so far as it was based on function and attainment ; that it should ensure ease of transfer for students, as well as freedom of development and flexibility of organisation for institutions ; and finally, that it should encourage the cultivation of high excellence.

829. It is our sincere hope that the recommendations of this Report will go some considerable way towards satisfying these requirements.

830. The systematic co-ordination of policy to meet national needs should be provided by our recommendations regarding the machinery of government. The bringing together under one Grants Commission of the universities and the Colleges of Education, together with the Colleges of Advanced Technology and their Scottish counterparts, should ensure uniformity in policy and in the principles of allocation over the entire field of autonomous institutions. The administrative and consultative machinery we have recommended should ensure full co-ordination of this sector, both with the branches of further education that continue to be locally administered and with the schools. The assignment of responsibility for the Grants Commission to a minister responsible also for the Research Councils and other bodies with similar functions should emphasise the essential unity of higher education with the advancement and preservation of knowledge.

831. Calculations of future numbers have been made in the spirit of the requirement that all applicants with the appropriate qualifications should have places. Admittedly we have had to assume criteria of selection that are capable of improvement and educational and social trends that are to some extent a matter of conjecture. But, given appropriate machinery for observing developments as they occur and for modifying plans when this proves necessary, we are convinced that our estimate of the need for about 560,000 places in 1980 provides the right target for the realisation of this aim. We are aware that the magnitude of this need will come as a surprise to many. But we have been conservative in our assumptions and, if we had to guess at the probable direction of error, we think it the more likely that we have set our sights too low.

832. The requirement of equal awards for equal performance is met by a number of recommendations. The award of degrees by the Colleges of Advanced Technology should remove the most glaring of present deficiencies.

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The provision of degrees in Colleges of Education, together with the creation of the Council for National Academic Awards, should ensure that work done in other institutions is also recognised.

833. Such changes would also help to meet the requirement that artificial differences of status among the institutions should be eliminated. There are differences arising from differences of purpose or achievement that it would be wrong to attempt to remove. But there are others that are alien to our conception of the system of higher education of the future; the elevation of the Colleges of Advanced Technology to the status of technological universities, with the far-reaching changes proposed in the status of the Colleges of Education, should go far to remove the present irrational distinctions. Developments in the academic work and the forms of government of other institutions will make the distinctions between categories less marked, and our various proposals for student transfer will mean they offer no impediment to an individual's progress.

834. In these recommendations about organisation we have endeavoured to keep in mind the critically important requirement of freedom and flexibility. Throughout we have conceived present arrangements to mark no more than a stage of development in an evolving system. We have recommended the eventual promotion of further institutions to university status and emphasised the desirability of experiment. We have stressed the importance of wide representation and decentralised initiative in the internal government of institutions. We have endeavoured to elaborate as an articulate code the principles of academic freedom. The recommendations regarding the machinery of government, especially the preservation of the grants committee principle, are all designed to secure the maximum of freedom and flexibility compatible with orderly progress.

835. The last requirement was the cultivation of high excellence and we have made specific recommendations designed to achieve this aim, notably the proposals for the development of postgraduate studies and for the establishment of Special Institutions for Scientific and Technological Education and Research. But it has also been our aspiration to ensure that all our recommendations are informed by the same spirit. At this stage in the history of British higher education, it is a mistake to regard the claims of quantity and quality as being in conflict. Regard for the former is a safeguard against waste of talent; regard for the latter is a guarantee of the worth and merit of the whole.

836. The achievement of all this will not be easy. Teachers and administrators in the institutions concerned have lived for the last two decades under the stress of an expansion unprecedented in our history. They are now called upon to carry through even more strenuous reorganisation and development. But we are confident that, if they are assured of the necessary resources and public support, they will respond.

837. The public and the Government, for their part, will be required to make a more serious estimate of the comparative value of higher education than ever before. Much of the burden can be carried with ease in a regime

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of higher productivity. But some of it, at least until higher productivity has been achieved, will require a greater sacrifice of resources and manpower than has hitherto been customary. We hope and believe that such a revaluation of national priorities will be made. Not only is it a probable condition for the maintenance of our material position in the world, but, much more, it is an essential condition for the realisation in the modern age of the ideals of a free and democratic society.

SUMMARY OF THE REPORT

THE STRUCTURAL SURVEY

1. Our terms of reference instructed us to review the present pattern of higher education and to make suggestions for improving it. Our first task, therefore, after some preliminary discussion of principles, was to make a thorough survey of the existing situation in higher education in Great Britain and the historical trends of which it is the outcome. The results of this survey are set out in broad outline in Chapter III and later chapters; details will be found in Appendices One, Two, Three and Four. Whatever may be the fate of our specific recommendations, we hope that the results of this survey, the product of the skill of our technical advisers, will place the study of higher education in this country upon a new footing.

INTERNATIONAL COMPARISONS

2. Comparisons with conditions abroad reveal a situation of some complexity. In the United States of America, the Soviet Union and certain Commonwealth countries the provision of higher education greatly exceeds our own, after allowing for differences in population. But elsewhere the comparison is more ambiguous. Judged on grounds of opportunity offered for entry, our system is well down the list of the systems with which we have compared it. Judged on grounds of output of qualified persons, the comparison is not unfavourable: the United States of America and the Soviet Union apart, we stand very high on the list. But when we compare published plans for future development many other countries are far ahead of us. If, as we believe, a highly educated population is essential to meet competitive pressures in the modern world, a much greater effort is necessary if we are to hold our own.

THE FUTURE REQUIREMENT FOR PLACES

3. Our calculation of the future requirement for places in this country is based on an estimate of the numbers of young people who, on the present basis of student grants, will both be able to satisfy suitable entrance requirements for higher education and will wish to be admitted. Our investigations have suggested the existence of large reservoirs of untapped ability in the population, especially among girls: they have also shown a most significant increase in the number of young people coming forward year by year from the schools. We recognise that there can be no certainty how strongly this trend will continue up to 1980. With that qualification, and on the assumptions set out in Chapter VI and Appendix One, which allow for no relaxation in the degree of competition for entry, we have arrived at a requirement of about 560,000 places for full-time students in all higher education in 1980/1, and of about 390,000 places in 1973/4, compared with 216,000 in 1962/3.

HIGHER EDUCATION AND THE SCHOOLS

4. We are clear that the main remedy for the serious strains that are placed on the schools must lie in a great expansion of places in higher education. But there are a number of ways in which the processes of selection for higher education might be improved; and the arrangements for co-ordination between institutions of higher education and the schools should be strengthened. The special problems due to competition for places in institutions of outstanding eminence can only be solved by the improvement of other institutions.

EXISTING INSTITUTIONS AND COURSES

5. In order to decide how best to reach the target of 560,000 places it is necessary first to examine the provision made and the potentialities of existing institutions—the universities, the Training Colleges and Colleges of Education, the various institutions specialising in technology and the system of further education in general.

Universities

6. There is much to praise in the universities' central tradition of teaching and research and their provision of honours courses for studies in depth. But there are also two weaknesses: the small proportion of students in the universities of England and Wales taking first degrees of a broader nature, and the inadequate provision for postgraduate study and research.

7. Broader courses for the first degree are already available to a larger extent than is often realised. But these courses should be taken by a much greater number of students than at present, both on educational grounds and in the interest of their future careers. We should not recommend so large an expansion of universities as we do unless we were confident that it would be accompanied by a big increase in the number of students taking broader first degree courses.

8. A general lengthening of undergraduate courses to four years is undesirable, but a substantially higher proportion of students than at present should proceed to postgraduate work, with appropriate grants. The quality of the best research in this country will bear comparison with anything done elsewhere. But the growing complexity in the developing branches of knowledge in many cases requires a better foundation of fundamental studies than can be provided in the present first degree course; and it is in this respect that arrangements in some other countries are superior. We consequently recommend more provision both for research and, in particular, for advanced courses.

Colleges for the education and training of teachers

9. In the rapidly changing colleges for the education and training of teachers there are very different problems. In England and Wales many of the colleges are very small. Some of the students have the capacity to do work

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of degree standard ; and although the colleges will continue to concentrate in the main on courses of the present kind, it is unjust that there should be no facilities for obtaining a degree. But to confer degree-giving powers on all the existing colleges would be inappropriate because of the number involved, the variation in their sizes and the diversity of standards.

10. Differences of size are clearly capable of being remedied within various types of administrative structure ; and plans already made for the future are designed to produce a big improvement. But under the present arrangements the problems of status and awards are more intractable. We recommend a radical change. The status of the colleges would best be assured and the problem of degrees satisfactorily solved by a closer association with the universities. Our recommendation is that, as a development from the Institutes of Education in which the colleges are at present associated with the universities, there should be set up University Schools of Education under whose auspices degrees would be available to suitable college students. The Schools of Education would receive finance through the grants committee system. Training Colleges, which should be renamed Colleges of Education, would be given independent governing bodies ; they would become members of the Schools of Education and would receive finance from them.

11. We do not recommend a degree for students who complete the present course : to award both a professional qualification and a degree after three years would leave insufficient time for the depth of academic study that characterises a three-year degree course and would give the students concerned an unfair advantage over those university students who, after a three-year course for a degree, take another year's professional training before becoming teachers. We do, however, recommend that such students as—either on entry or after a preliminary period—are found to possess the capacity should be able, if they wish, to take a course of study that, in addition to giving professional training, leads after four years to a degree. For a minority of students transfer to a university may be appropriate.

12. For the universities these proposals involve an additional administrative burden at a time when preoccupation with their own expansion will be very great. But we are convinced that immense benefit will flow from closer links with the universities and that our proposals offer the best hope of raising the status and standards of the colleges and securing their full integration into the system of higher education of the future. For the local authorities, who have done so much to promote the development of the colleges, and who are so closely involved in the supply of teachers, these proposals involve parting with institutions to which many of their members have devoted long and energetic service. It is essential that, in ways that we specify in some detail, the local authorities should be associated with the Colleges and the Schools of Education.

13. In Scotland, too, we propose that degrees should be awarded to appropriate students in Colleges of Education who successfully complete a four-year course. Our proposals for changes in the government of the colleges are somewhat different from those in England and Wales, but their cumulative tendency is in the same direction.

Technological and further education

14. There is an outstanding need to attract a higher proportion of first class talent into courses in technology and to provide for the more effective organisation of research and training at postgraduate level both inside and outside the universities.

15. We recommend the development of five Special Institutions for Scientific and Technological Education and Research, comparable in size and standing and in advanced research to the great technological institutions of the United States of America and the Continent. The bases for three such institutions already exist in the university sphere. We recommend that another, completely new, institution should be planned and that a fifth should be developed from one of the existing Colleges of Advanced Technology.

16. We recommend that in general the Colleges of Advanced Technology should be given charters as technological universities. They should be placed as soon as possible under the Grants Commission, which is one of our main recommendations for the future machinery of central government, and, as with the new universities, their progress towards complete autonomy should be supervised by academic advisory committees. Some of the Central Institutions in Scotland, if they do not forge links with universities, should move in the same direction.

17. We welcome the developments in management education taking place in various universities and colleges, but we recommend that there should be developed on a larger scale two postgraduate schools of management studies. In order to take advantage of the employment of part-time staff, both should be situated in large cities. In order to have immediately available the best specialists in the relevant technical disciplines, both should be associated with university institutions.

18. The Regional Colleges are to be regarded as at once providing the seedbed for some further growth of institutions to university status and as fostering, in addition to their characteristic work in science and technology, educational experiments in fields such as the teaching of modern languages and many aspects of business studies.

19. We hope that, for reasons of economy of staff and equipment, the work of university level will be concentrated as far as possible in selected centres. But we attach great value to the continued provision of facilities for work of university level over a wide area. The Area Colleges will develop in a variety of ways, and the opportunities open to students will be enhanced by our proposals that degrees should be available for appropriate courses.

20. Students taking advanced courses in the Regional and Area Colleges should have the same opportunity for degrees as those in university institutions. For this purpose, we recommend the creation of a Council for National Academic Awards to perform, for Britain as a whole and with more extended terms of reference, functions similar to those performed so well in England and Wales by the present National Council for Technological Awards. In particular, the new Council would award degrees.

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THE FUTURE PATTERN OF HIGHER EDUCATION

21. We have carefully considered whether any new categories of institution should be introduced. We conclude that in general this is not necessary: the present range of institutions, if imaginatively developed, affords the necessary scope for new experiments and opportunities.

22. In suggesting how the 560,000 students of 1980 should be distributed between different types of institutions, one of our main concerns has been to reduce the pressure on the schools caused by the shortage of places in the universities. Some of this pressure may well be reduced by the extension of facilities for obtaining degrees in other institutions. But we doubt whether it will be reduced sufficiently. We therefore recommend that the universities' share of entrants to higher education should be increased from 55 per cent. in 1962 to 60 per cent. in 1980.

23. If this is to happen, the necessary first steps must be taken immediately. Of the 350,000 university places needed by 1980, nearly 300,000 might in favourable conditions be provided by the development of existing institutions, which at present contain 130,000 students. In modern conditions it is desirable that universities should be large enough to have an adequate division of labour within departments and to make economical use of buildings and equipment.

24. It may be that most of the university places that are required in the next ten years can be provided by such developments. But if no further steps are taken, the situation will thereafter be irretrievable, for universities take long to establish. We therefore recommend the immediate foundation of six new universities, of which at least one should be in Scotland. Another would be the new Special Institution for Scientific and Technological Education and Research. Such new foundations might provide 30,000 places by 1980. The remaining places should be provided by the advancement to university status of some ten Regional Colleges and Colleges of Education. If the scale of these recommendations should seem over-ambitious, we would remind the sceptics that demographic projections beyond 1980 suggest no lessening of the rate at which the demand for places will grow.

25. Except for management studies and languages, we have not made recommendations about the content of courses in particular subjects, holding this to be a matter best worked out in detail within and among the various institutions concerned. But we consider that there is scope for an increase in the proportion of students in higher education engaged in studying science—this will be largely achieved by current plans of development—and that there is scope for considerable increase in the proportion and an improvement in the quality of those taking technological courses of various kinds.

26. As we have indicated, much of the expansion contemplated will take place by the growth of existing institutions. But, for the remainder that demands new foundations, having regard to the decisions of the last few years, we wish to emphasise the claims of the great centres of population,

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both because of the advantages that institutions can draw from such an environment and because of the advantages they can confer. As a result of a recent decision, which we endorsed, there will soon be two universities in Glasgow; and there is room for more than one in some other large cities.

27. We emphasise the importance of expanding facilities for the education of adults, such as refresher courses for graduates in industry and courses for married women wishing to start or resume their careers after bringing up a family, as well as more general courses for those wishing to enlarge their intellectual and aesthetic horizons. Not all of these activities will be undertaken by full-time study. There will be a continuing role for the voluntary and statutory organisations interested in courses of part-time higher education. We hope that, as in the past, the universities will maintain an active interest in the provision of these courses and that the fruitful co-operation of the agencies in this field will continue.

STAFFING, TEACHERS AND STUDENTS

28. There is no reason to suppose that in the long term the expansion of higher education need be held up by lack of suitable teachers. But in the short term there will be difficulties; and in any event attention will have to be given to the economical use of manpower and the adoption of the most suitable methods of teaching. We repudiate any suggestion that the teaching problem should be solved at the expense of research, but we think that teaching time might well be used more effectively; and we urge that increased attention should be given to the problems of introducing young men and women from families with scanty educational background to the atmosphere of higher education. We also recommend the provision of more extensive residential facilities for students.

THE COST OF HIGHER EDUCATION AND ITS FINANCE

29. With an increase from 8 to 17 per cent. in the proportion of the relevant age group for whom we recommend that full-time higher education should be provided, the cost of higher education will be substantially increased both absolutely and in relation to the gross national product. While we are unable to put a figure on the return on this outlay considered as an investment, we are clear that it will be remunerative, both in its absolute effects on the general productivity and adaptability of the internal working of the economy and in helping to maintain our competitive position in the world at large.

30. On the assumption of a constant value of money and an average increase in productivity of $3\frac{1}{4}$ per cent. per annum, our proposals would lead to an increase in public expenditure on full-time higher education from £206 million in 1962/3 to £742 million in 1980/1; the proportion of gross national product devoted to this purpose would rise from 0.8 to 1.6 per cent. A substantial fraction of the rise in expenditure could be carried without increased relative burden by the increase in productivity we have assumed;

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and although there would remain a proportion not so carried, such expenditure would be well justified. On any broad appraisal of the return both in productivity and increased capacity for enjoyment, many items at present covered by public expenditure have less claim on our resources than this.

31. We have given considerable attention to the suggestion that part of the cost should be met by loans to students rather than outright grants covering maintenance and fees. We dismiss the belief that this would substantially alter the ultimate burden in terms of calls on real resources of manpower and equipment. But we recognise considerable force in arguments, based upon justice, for a partial charge for what otherwise might well be described as a subsidy from those sections of the community who do not get the returns which normally accompany superior educational qualifications. Nevertheless the introduction of a system of loans at a time when substantial proportions of the population were only beginning to acquire the habit of higher education might deter parents, particularly those with daughters, from persuading, encouraging or allowing their children to proceed to higher education. Hence, although as time goes on more attention may well be paid to this method of finance, we do not recommend its adoption here and now.

32. We have also considered the contribution of fees to the income of institutions, which in recent years (mainly because of the decline in the value of money) has become a much smaller proportion of their total income. At present most fees are wholly or in part met from rates or taxes so that, apart from overseas students and the relatively few home students whose parents pay fees, the distribution between fee income and subsidy is a matter of secondary importance to public finance. But we have been impressed by the argument that there is a certain safeguard for institutions if all their income does not come immediately from one administrative source; and for this reason we recommend an increase in fees so that they will cover at least 20 per cent. of the expenditure of institutions. An appropriate increase would be required in the general grant to local authorities.

THE INTERNAL GOVERNMENT OF INSTITUTIONS OF HIGHER EDUCATION

33. In discussing the government of individual autonomous institutions, we defend the principle of lay majorities on ultimate governing bodies but emphasise that there should be strong academic representation and that such bodies should not interfere with strictly academic business. We argue that there should be adequate representation of non-professorial members of the teaching body on all internal organs of government not concerned with matters of appointment and promotion. We outline a parallel code for other institutions. We draw attention to the importance of the position of vice-chancellors, especially in a period of expansion, and emphasise the need at once to relieve them of superfluous duties and to make adequate provision for appropriate methods of appointment. We discuss the problems of federalism among academic institutions, and recommend both the repeal of the Universities (Scotland) Act, 1889, and independent enquiries into the respective problems of the Universities of Wales, London, Oxford

Summary

and Cambridge as they affect the national interest, unless they solve these problems for themselves. We also propose a reconstruction of the present Committee of Vice-Chancellors and Principals, aimed at making it a body capable of representing an enlarged system of autonomous institutions in discussions with the Grants Commission, the schools and other interests.

ACADEMIC FREEDOM AND ITS SCOPE

34. The problems of reconciling in modern conditions the claims of autonomous institutions to academic freedom and the need for adequate co-ordination of a system substantially supported from public funds are the subject of a separate chapter. We set out, both in regard to individuals and institutions, the ingredients of academic freedom that, in our view, are essential to a healthy system of higher education. At the same time we indicate the spheres in which consideration of national needs and an economical use of public resources make it necessary to limit completely free action and to provide some machinery of co-ordination. Recognition of this need has made us all the more aware of its dangers. We therefore lay great emphasis on the principle of control through general block grants administered by an independent committee or commission appointed for its expert qualifications, not for its political affiliations. We regard this principle, exemplified in the present system by the University Grants Committee, as one of the significant administrative inventions of modern times: and we attach great importance to its retention and development in the machinery of government of the future.

THE FUNCTIONS OF THE GRANTS COMMISSION

35. We therefore recommend that oversight of the entire body of autonomous institutions, the universities and the Colleges of Advanced Technology, and with the universities the associated Schools of Education, together with the Scottish Colleges of Education, should be placed in the hands of a Grants Commission. This body, which would be the lineal successor of the University Grants Committee, would have the duty of advising the government on the magnitude of the grants to be made to this sector of higher education and of distributing grants and assessing the correct allocations to the different institutions concerned. The main body of the Commission would be constituted on the same principles as the University Grants Committee, with a suitably augmented staff. Much of its detailed work would, however, be conducted by a structure of committees, whose membership need not be restricted to members of the main Commission. In this way we believe that the intimate contacts characteristic of the operations of the University Grants Committee will be retained, although the scope of the Commission will be considerably wider.

MINISTERIAL RESPONSIBILITY

36. The problem of ministerial responsibility for the Grants Commission presents many difficulties. It would be inappropriate for the Chancellor of the Exchequer to be responsible for the Grants Commission, whose scope will be much wider than that of the University Grants Committee. Nor

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would it be suitable for it to be the responsibility of a minister without portfolio. We have considered therefore with great care whether the whole education service should become the responsibility of a Secretary of State for Education, and we do not wish to minimise the strength of the case that can be made for this. But in the end we have come to the conclusion that for autonomous institutions, involved as they are not only in teaching but also in research and the advancement of knowledge, the more appropriate conjunction for the Grants Commission would be with the Research Councils, the Arts Council and other bodies that have the status of advisory and distributing intermediaries. We recommend therefore the creation of a new ministry with the responsibility for all such intermediaries, with the title of Ministry of Arts and Science. For Scottish institutions, we recommend a special relationship between the new minister and the Secretary of State for Scotland.

THE MACHINERY OF CO-ORDINATION

37. With such a structure of ministerial responsibility—the new minister responsible for the Grants Commission and the institutions dependent on it, and the Minister of Education and the Secretary of State for Scotland remaining responsible for the other institutions of higher education and the schools—there will be a need for co-ordination. The prime responsibility for this will rest with the ministers and their departments, advised on specific questions like the supply of teachers by national advisory bodies. But we also recommend the establishment of a small Consultative Council, composed of people representative of various educational and other interests, to which ministers can remit questions concerned with higher education as a whole, as well as its relations with the schools.

THE CRISIS IMMEDIATELY AHEAD

38. The Report concludes by drawing attention to an educational emergency now confronting higher education because of the arrival at the ages of seventeen and eighteen of the very large numbers of children born immediately after the second world war. In our judgment, this is an emergency of the same importance as the emergency produced by demobilisation after the last war and demanding the same type of extraordinary measures to meet it. If the needs of this situation are not adequately met by immediate government action, many of our plans for long-term expansion will be seriously endangered.

LIST OF RECOMMENDATIONS

(Each to be read in the light of the fuller explanation given in the paragraphs cited)

THE FUTURE DEMAND FOR HIGHER EDUCATION AND THE PLACES NEEDED TO MEET IT (CHAPTER VI)

1. Compared with the 216,000 students in full-time higher education in Great Britain in 1962/3, places should be available for about 390,000 in 1973/4 and, on present estimates, for about 560,000 in 1980/1. (Para. 179.)

HIGHER EDUCATION AND THE SCHOOLS (CHAPTER VII)

The special influence of certain universities

2. In order to reduce the relative attraction of Oxford and Cambridge, specially generous capital grants should be made for the renewal and development of other universities. (Para. 216.)
3. There should be closer relations between the men's colleges at Oxford and Cambridge and the schools maintained by local education authorities. (Para. 221.)

Selection for higher education

4. Institutions of higher education and the schools should consider how better information can be made available to young people and their parents about the courses available in higher education. (Para. 225.)
5. The Scottish universities should establish common faculty requirements. (Para. 226.)
6. The work of the Universities Central Council on Admissions should cover applicants to all universities and the Colleges of Advanced Technology. (Para. 227.)
7. Institutions of higher education and the schools should jointly consider how school records and recommendations can best contribute to the process of selection. Institutions of higher education should send back to the schools an account of the progress made by their pupils. (Para. 229.)
8. There should be research by an independent body into the extent to which aptitude tests might supplement other features of the selection process. (Para. 232.)

Co-operation between higher education and the schools

9. The Secondary School Examinations Council, or its successor, and the Committee of Vice-Chancellors and Principals should devise means whereby

List of recommendations

they can discuss problems affecting the transition from school to higher education. (Para. 236.) Associations of teachers should be consulted and recommendations published from time to time. (Para. 237.)

10. There should be more contacts between individual schools and local education authorities on the one hand and institutions of higher education on the other. (Para. 238.)

11. Teachers in institutions of higher education and in the schools should collaborate in the revision of school syllabuses and textbooks. (Para. 239.)

12. Curriculum research and development and the training of school teachers in new methods should be fostered. (Para. 240.)

UNIVERSITY COURSES (CHAPTER VIII)

First degree courses : England and Wales

13. The syllabuses of first degree courses should be regularly reviewed to avoid overloading. (Para. 255.)

14. A higher proportion of students should receive a broader education for their first degrees. (Para. 262.)

15. There should be more courses involving the study of more than one main subject. (Para. 264.)

16. Arrangements should wherever possible allow a student to postpone his choice of special subject until the end of the first year or to change his course of study then, if necessary with an extension of grant. (Para. 271.)

17. Students who do not live up to their early promise should be transferred, after their first or second year, to less exacting courses. (Para. 272.)

First degree courses : Scotland

18. The broad general first degree course in Scotland should be retained. (Para. 277.)

19. More individual attention should be given to Ordinary degree students. (Para. 277.)

Length of first degree courses

20. First degree courses should not in general be lengthened. (Para. 281.)

Postgraduate studies

21. Postgraduate work should normally include an element of systematic teaching. (Para. 297.)

22. The emphasis on work for higher degrees and diplomas should in some cases be on advanced study rather than on the preparation of a thesis. (Para. 299.)

List of recommendations

23. The proportion of graduates proceeding to postgraduate work should be increased from 20 per cent. to 30 per cent. by 1980. (Para. 301.)
24. More awards should be available for postgraduate study, particularly in the social sciences and the humanities. (Para. 304.)
25. There should be better arrangements for the supervision of postgraduate students. (Para. 305.)
26. More graduates who wish to go on to postgraduate work should be encouraged to do so at a university other than the one at which they took their first degree. (Para. 306.)

A common policy

27. The universities should consult together about courses of study at undergraduate and postgraduate level to ensure that arrangements complement each other and that there is a measure of uniformity in standards and nomenclature of degrees. (Para. 307.)

COLLEGES FOR THE EDUCATION AND TRAINING OF TEACHERS (CHAPTER IX)

England and Wales

28. The average size of Training Colleges should be increased and in the long run a college with less than 750 students should be the exception. (Para. 319.)
29. The three-year concurrent course leading to a professional qualification should continue to be available. (Para. 329.) Four-year courses leading both to a degree and to a professional qualification should be provided in Training Colleges for suitable students. (Para. 333.)
30. By the 1970's there should be a big increase in the number of students taking four-year courses, and provision should be made for this in the further expansion of the colleges. (Para. 339.)
31. In suitable cases students should be able to transfer after a period at a college to a university to take a degree there in the subject of their choice. (Para. 338.)
32. For those who wish to start teaching on completion of professional training there should be opportunities at a later stage to complete their degree qualifications by means of part-time study. (Para. 340.)
33. A B.Ed. degree of the university with which the college will be linked (see 35 below) should be awarded at the conclusion of the four-year course. (Para. 341.)
34. The Training Colleges should be renamed Colleges of Education. (Para. 351.)
35. The colleges in each university's Institute of Education and the University Department of Education should be formed into a School of Education. (Para. 351.)

List of recommendations

36. On the academic side, each School should be responsible to the university senate for the degrees awarded to students in Colleges of Education. Each School of Education should have its own academic board and boards of studies. (Para. 352.)

37. Local education authorities should be appropriately represented on the governing bodies both of the colleges for which they are at present responsible and of the Schools of Education. (Para. 354.)

38. The Minister of Education should appoint assessors to the governing bodies of Schools of Education. (Para. 354.)

39. The colleges should have independent governing bodies and should be financed by earmarked grants made by the Grants Commission (see 151 below) through universities to the Schools of Education. (Para. 355.)

40. The voluntary colleges should be included in Schools of Education, subject to some modification of the general financial arrangements. (Para. 356.)

Scotland

41. In the Colleges of Education, there should be four-year courses for suitable students leading to a degree awarded by universities as well as to a professional qualification. (Para. 363.)

42. The teaching staff should be represented on the governing bodies of the colleges. (Para. 367.)

43. The colleges should set up boards of studies for each of the subjects in which degree level work is established. (Para. 370.)

44. Universities should be represented on the boards of studies. (Para. 370.)

45. University graduates in arts and science who are training as teachers should normally take the course for the university Diploma in Education. (Para. 372.)

46. This course should be the responsibility of a joint board of studies from the university and the College of Education. (Para. 372.)

47. The colleges should be financed by grants from the Grants Commission. (Para. 373.)

INSTITUTIONS FOR TECHNOLOGICAL EDUCATION AND THE SYSTEM OF FURTHER EDUCATION (CHAPTER X)

Institutions of technology at university level

48. The volume of postgraduate work in science and technology should be considerably increased and, in particular, this should allow for the growth of postgraduate courses of study. (Para. 380.)

List of recommendations

49. A major effort should be made to encourage an increase in technological as well as scientific research. (Para. 381.)

50. Larger institutions and faculties should be built up to enable departments to use resources to the best advantage. (Para. 382.)

Special Institutions for Scientific and Technological Education and Research

51. A number of university institutions devoted to high level teaching and research, chiefly in science and technology, should be selected for rapid development. (Para. 383.) They should be given financial support similar to that given to Imperial College in the last decade. (Para. 387.)

52. They should each contain about 3,500 to 4,500 students, of whom half should be postgraduate students. There should be good staffing ratios and adequate provision of equipment and technical assistance. (Para. 384.)

53. Imperial College and the Colleges of Science and Technology at Manchester and Glasgow should provide the nuclei of three such institutions. (Para. 386.)

54. Another completely new institution should be planned immediately and a fifth should be developed from one of the existing Colleges of Advanced Technology. (Para. 386.)

55. The two new Special Institutions should be constitutionally independent. (Para. 388.)

Colleges of Advanced Technology

56. These colleges should in general be designated as technological universities, with power to award both first and higher degrees. (Paras. 392, 393.)

57. Responsibility for their finance should be transferred to the Grants Commission. (Para. 395.)

58. As with the new universities, an Academic Advisory Committee attached to each college should supervise courses and examinations until the college is ready for complete independence. (Para. 395.)

59. Their emphasis should be on teaching and research in technology and science, but the development of other subjects should be encouraged. (Paras. 396, 397.)

60. They should each ultimately contain between 3,000 and 5,000 students. (Para. 397.)

The Scottish Central Institutions

61. The most advanced Central Institutions should be given university status either by close association with an appropriate university or on the lines proposed for the Colleges of Advanced Technology. (Para. 399.)

62. The others should either have some form of association with the Royal College of Science and Technology in its new role as a university or should

List of recommendations

follow the arrangements proposed for Regional Colleges in England and Wales (see 67-69 below). Students should be able to receive the same kind of awards as their counterparts in England and Wales. (Paras. 400, 401.)

Links with government research establishments and with industry

63. The links between university institutions and government research establishments and industry should be strengthened by freer movement of staff and more joint arrangements for research and the supervision of research; and the institutions should invite more part-time teaching assistance from the research establishments and from industry. (Para. 404.)

Business studies and education for management

64. Courses in subjects relevant to business problems may properly be taken at the undergraduate stage, but education for management as such should be a subject for postgraduate study, often after a period of experience. (Paras. 407, 408.)

65. Two postgraduate business schools, providing courses in management, should be developed, each in association with a university or a Special Institution and close to a large business centre. (Paras. 410-412.)

Modern languages

66. Some technological universities and Regional Colleges should provide courses in the practical use of languages. (Para. 414.)

Regional Colleges

67. The Regional Colleges should develop a wider range of advanced full-time courses. (Para. 418.)

68. A number of the colleges should continue to be maintained by local education authorities. (Para. 419.)

69. There should be opportunities for others, in some cases after federation with another technical college or a Training College, to become in due course parts of universities or universities in their own right. (Para. 419.)

Area Colleges and Colleges of Commerce

70. These colleges should continue to be maintained by local education authorities. (Para. 422.)

71. They should continue to provide a variety of courses in close association with local industry. (Para. 422.)

72. Advanced full-time courses should in the main be concentrated in those colleges likely to be selected for Regional College status. (Para. 423.)

73. There should be arrangements for the transfer, with appropriate financial assistance where necessary, of suitable students from Local Colleges to advanced courses in Regional and Area Colleges; and, at the postgraduate stage, to universities and technological universities. (Para. 424.)

List of recommendations

Academic awards

74. The National Council for Technological Awards should be replaced by a Council for National Academic Awards, covering the whole of Great Britain. It might be established under royal charter. (Para. 433.)

75. The Council should be made up of representatives of the universities (including technological universities), the Regional and Area Colleges and industry. (Para. 433.)

76. The Council should award honours and pass degrees to students in Regional and Area Colleges and their Scottish counterparts taking appropriate courses in science, technology and other subjects. (Para. 433.)

77. Courses should only be approved in colleges where there is a nucleus of full-time work. (Para. 434.)

78. If a system of higher degrees is needed, it should be confined to colleges developing a large volume of postgraduate work. (Para. 432.)

79. Legislation should be introduced to prevent unauthorised bodies and persons from awarding degrees and to make action possible against those who falsely claim qualifications. (Para. 435.)

Colleges and Schools of Art

80. The Royal College of Art should be treated administratively in the same way as Colleges of Advanced Technology and brought within the ambit of the Grants Commission. (Para. 436.)

81. Other colleges in England and Wales providing advanced courses in art should develop on the lines of Regional and Area Colleges. (Para. 436.)

82. The Diploma in Art and Design and the Scottish diplomas, rather than degrees, should in general be the awards open to advanced students in art. (Para. 438.)

Other institutions

83. The College of Aeronautics should be brought within the ambit of the Grants Commission. (Para. 440.) If it retains its present size and wishes its students to be eligible for higher degrees, it should create a link with a university. (Para. 441.)

84. Degrees should be available to students at the National and Agricultural Colleges as and when they offer degree level courses. (Paras. 442, 443.)

THE FUTURE PATTERN OF HIGHER EDUCATION (CHAPTER XI)

85. In future detailed planning should be made for a period extending ten years ahead. (Para. 457.)

86. Those responsible for policy should also be provided with estimates covering the following decade. (Para. 457.)

List of recommendations

87. Enough places should be provided to allow the proportion of qualified school leavers entering universities to be increased as soon as practicable. (Para. 465.) It should never be allowed to fall below its present level. (Para. 491.)

88. University places should provide about 350,000 of the total of 560,000 places needed in 1980/1. (Para. 465.)

89. Many existing universities should be expanded to 8,000 or 10,000 places each. (Para. 471.) Local authorities should recognise well in advance that universities need ample sites for expansion. (Para. 473.)

90. Six new universities should be established at once so that they can provide about 30,000 places by 1980/1. (Para. 476.)

91. A further 20,000 university places should be provided by giving university status to some ten Regional Colleges, Central Institutions and Colleges of Education. (Para. 477.)

92. At least one of the new universities should be in Scotland. (Para. 478.)

93. There should be about 145,000 places for intending teachers in Colleges of Education in 1980/1. (Para. 483.) Plans for Colleges of Education should also increasingly provide for students who intend to take up careers other than teaching. (Para. 485.)

94. There should be about 65,000 places for full-time advanced students in further education in 1980/1. (Para. 486.)

95. Most of the expansion in Colleges of Education and further education should be achieved in existing institutions. (Para. 488.)

96. Where new foundations are needed there should be experiments in which further education and the education and training of teachers are combined in a single institution. (Para. 489.)

The next ten years

97. Of the 392,000 places needed in 1973/4, 219,000 should be in universities, 122,000 in Colleges of Education and 51,000 in further education. (Para. 494.)

The location of universities

98. The majority of new universities or institutions chosen for the granting of university status should be in or near large centres of population. (Para. 502.)

Areas of study

99. Provision should be made for a growth in the proportion of students taking science and, particularly, technology. (Para. 507.)

100. This can, and should, be achieved without reducing the proportion taking arts subjects. (Para. 508.)

List of recommendations

The education of adults

101. Those who wish to embark on or resume higher education later in life should be encouraged to do so. (Paras. 513, 514.)

102. Adequate grants should be made to enable women to take refresher courses or initial courses of higher education. (Para. 515.)

103. The Ministry of Education and the Scottish Education Department should consider giving capital grants to the residential colleges of adult education and grants to suitable students. (Para. 517.)

104. The work for adult education undertaken by the local authorities, the University Extra-Mural Departments and the Workers' Educational Association should be encouraged. (Para. 518.)

STAFFING (CHAPTER XII)

Student/staff ratios

105. The present student/staff ratios in university institutions particularly concerned with research and postgraduate training should be maintained and, when practicable, improved. (Para. 527.)

106. Student/staff ratios in higher education as a whole should not be allowed to deteriorate. (Para. 532.)

Conditions of service

107. Conditions of service for teachers in higher education should be such as to attract recruits of the necessary calibre into all sectors. (Para. 540.)

108. Any disparity between the incomes and prospects of teachers doing similar work in different universities should be removed. (Para. 542.)

109. The structure of university staffing as a whole should be reviewed, with special reference to the effect on promotion prospects of the number of professorial posts and the ratio of junior to senior non-professorial posts. (Para. 544.)

110. There should be good facilities and enough funds for research, generous allowances of sabbatical leave and adequate secretarial and technical help. (Para. 545.)

111. Large institutions of higher education should establish and publicise schemes for training technical assistants and should be given the necessary funds to enable them to do so. (Para. 547.)

112. Arrangements for superannuation payments should be such as to facilitate the movement of staff between higher education, government and other research establishments and industry. (Para. 548.)

Part-time teachers

113. There should be a more widespread use of part-time staff in higher education, though they should not predominate in any faculty or department. (Para. 549.)

List of recommendations

114. In some universities more use should be made of postgraduate students for informal teaching and the conduct of discussion groups. (Para. 550.)

TEACHERS AND STUDENTS (CHAPTER XIII)

Teaching and research

115. Because teaching and research are complementary, research should not be removed from universities and concentrated in research institutes. (Para. 554.)

116. The balance between teaching and research in the universities should in general be maintained. (Para. 558.)

117. In appointing and promoting staff more weight than at present should be given to qualities other than distinction in research, and in particular to ability as a teacher. (Para. 561.)

118. Any distinctions in status and salary scale between readers and senior lecturers should be removed. (Para. 562.)

Teaching methods

119. More teaching should be undertaken in small classes: lectures should normally be devoted to the exposition of principles to large audiences. (Paras. 567, 568.)

120. Every student should be assigned to a tutor and should receive regular personal guidance. (Para. 570.)

121. Every student should be regularly set written work, which should be returned and discussed with him. (Para. 570.)

122. Discussion periods should complement lectures. (Para. 571.)

123. All newly-appointed junior teachers should have organised opportunities to acquire the techniques of lecturing and conducting discussion groups. (Para. 572.)

Examinations

124. Universities should consult together about methods of examination. The Council for National Academic Awards should promote the exchange of views and information on examination methods amongst institutions of further education. (Para. 574.)

Wastage

125. The success or failure of a student should depend only on his ability and attainment: in no university faculty should there be a percentage of students whom it is customary to fail. (Para. 580.)

126. Every university department should keep the wastage rate continuously under review. (Para. 581.)

127. In further education wastage rates should be reduced by the provision of a wider range of courses at degree level and by more attention to teaching methods. (Para. 584.)

List of recommendations

Social intercourse

128. Universities should provide facilities for social contact between staff and students. (Para. 586.)

Living accommodation

129. Residential accommodation should be provided for a number equivalent to two thirds of the additional students coming into all sectors of higher education. (Para. 594.) By 1980 over 225,000 additional residential places should be provided. (Para. 595.)

Vacations

130. Students should spend a large part of their vacations on work related to their fields of study and grants should be assessed accordingly. They should receive guidance on how to use the vacations and should be required to give evidence that the time has been profitably spent. (Para. 597.)

FINANCIAL AND ECONOMIC ASPECTS (CHAPTER XIV)

131. The introduction of loans to students instead of grants would not be appropriate, at least for the immediate future. (Para. 647.)

132. Tuition fees should be revised so that in future they meet at least 20 per cent. of current institutional expenditure. (Para. 654.)

THE INTERNAL GOVERNMENT OF INSTITUTIONS OF HIGHER EDUCATION (CHAPTER XV)

Autonomous institutions

133. Governing bodies should normally contain a majority of lay members. (Para. 665.)

134. Lay members appointed by an outside body should be appointed for a definite period of years and as individuals, not delegates. (Para. 667.)

135. Non-professorial staff should be enabled to play a full part in internal self-government. (Para. 670.) Staff at all levels should be informed of the reasons for policy decisions. (Para. 675.)

136. The administrative burden on vice-chancellors should be reduced. (Para. 676.)

137. Delays between the retirement of a vice-chancellor and the appointment of his successor should be avoided. (Para. 677.)

Further education

138. Institutions of higher education administered by local authorities should have a properly constituted governing body, with suitable academic representation and lay membership. (Para. 679.)

139. Governing bodies should be given responsibility for finance three years ahead under broad categories of expenditure. (Para. 680.)

140. Principals should be appointed by governing bodies on which academic interests are represented. (Para. 681.)

List of recommendations

141. Senior academic appointments should be made by the principal and senior academic staff, with lay advice. (Para. 681.)

142. Junior academic appointments should be made by appropriate committees of academic staff. (Para. 681.)

143. The principal and senior staff should control the admission of students. (Para. 682.)

144. Boards of studies should be responsible for syllabuses and courses. (Para. 682.)

The federal principle and other forms of association

145. If the Universities of Wales and London cannot themselves speedily and satisfactorily resolve the problems arising from a federal structure, these problems should be the subject of independent inquiries. (Para. 686.)

146. If the Universities of Oxford and Cambridge are unable themselves to solve within a reasonable time problems arising from their collegiate structure, these problems should be the subject of independent inquiries. (Para. 687.)

147. The Universities (Scotland) Act, 1889, should be repealed and the constitutions of the universities amended accordingly. (Para. 690.)

148. Parliament should consider whether it is any longer necessary to require ordinances and statutes of certain universities to be submitted to it for approval as well as to the Privy Council. (Para. 691.)

The Committee of Vice-Chancellors and Principals

149. The Committee of Vice-Chancellors and Principals should be reconstituted. Each university should be represented on the Committee by its chief administrator and by a member of the academic staff elected by the senate. (Para. 696.)

150. The Committee should appoint a standing committee of fifteen to twenty members and standing or *ad hoc* sub-committees as required. (Paras. 697, 699.)

THE MACHINERY OF GOVERNMENT (CHAPTER XVII)

The Grants Commission

151. A single Grants Commission should be responsible for advising the Government on the needs of all autonomous institutions of higher education in Great Britain and for distributing grants to them. (Para. 744.)

152. The Commission should consist of a full-time chairman, two full-time deputy chairmen and about twenty part-time members. (Para. 744.)

153. The Commission should set up standing committees to deal with areas of study and *ad hoc* committees to deal with topics of current interest. (Para. 745.)

List of recommendations

154. There should be two education committees responsible to the Commission for Schools of Education in England and Wales and Colleges of Education in Scotland respectively. (Paras. 745, 746.)

155. The Commission and its committees should continue the practice of visitations to institutions, including Schools of Education and their constituent Colleges of Education. (Para. 747.)

156. The staff of the Commission, which should be responsible to the Commission itself, should be considerably larger than that of the University Grants Committee. (Para. 749.)

157. The Commission should devise improvements in the present system for the allocation of recurrent grants, and put them into effect as soon as possible. (Para. 751.)

Accountability

158. The present arrangements under which the University Grants Committee and the universities are not accountable in detail to Parliament should be applied to the Grants Commission and to all the institutions for which it becomes responsible. (Para. 755.)

Academic salaries

159. There should be an independent body to advise the Government on the salaries of academic staff in autonomous institutions of higher education. (Para. 761.)

Ministerial responsibility

160. There should be a Minister of Arts and Science responsible for the Grants Commission, the Research Councils and other autonomous state-supported activities administered on similar principles. (Para. 784.)

161. On questions of particular concern to the Scottish universities the views of the Secretary of State for Scotland should continue to be taken into account ; and he should be associated with the Minister of Arts and Science in considering advice from the Grants Commission on the affairs of Central Institutions and the Scottish Colleges of Education when they are placed under the Commission. (Paras. 789, 790.)

162. Responsibility for the other institutions of higher education in England and Wales should remain with the Minister of Education and, in the main, with the local education authorities ; and, in Scotland, with the Secretary of State. (Paras. 783, 791.)

Co-ordination

163. The three ministers concerned with higher education should establish a small Consultative Council, composed of people representative of various educational and other interests, to which they can remit major questions covering the whole field of higher education as well as its relations with the schools. (Para. 797.)

List of recommendations

164. The Council for National Academic Awards should be appointed by and advise all three ministers concerned with higher education. (Para. 799.)

165. National advisory councils in the field of advanced further education should include representatives of the autonomous institutions and the Grants Commission and should also advise all three ministers. (Para. 800.)

166. The National Advisory Council on the Training and Supply of Teachers should advise both the Minister of Arts and Science and the Minister of Education. (Para. 802.)

167. Similar arrangements for co-ordination should be made in Scotland. (Para. 803.)

Research and statistics

168. Research into higher education should be encouraged both by the various responsible organs of government and by private foundations. (Para. 804.)

169. There should be an appropriate organisation of governmental statistical services to ensure that adequate statistics relating to education as a whole are collected and analysed on a uniform basis. (Para. 806.)

THE SHORT-TERM EMERGENCY (CHAPTER XVIII)

170. The Government should provide sufficient resources to enable the universities to offer in 1966/7 about 10 per cent. more places than are at present planned for that year. (Para. 817.)

Capital building programmes

171. There should be an immediate announcement that the universities' capital building programme for 1964 and succeeding years will be substantially increased so that more accommodation, for teaching and especially for residence, can be provided. (Para. 818.)

Recurrent grants

172. Recurrent grants should be increased sufficiently to enable full use to be made of new buildings and to maintain the present student/staff ratios. (Paras. 818, 819.)

173. If the universities cannot recruit enough additional teachers to maintain the present student/staff ratios, these recurrent grants should be available for the provision of more technical and secretarial assistance to ease the burden on teachers and for the additional remuneration of teachers who undertake extraordinary additional duties. (Para. 819.)

Other measures

174. Universities should consider the introduction of courses for first degrees combining study during the day with evening instruction, and also the introduction of correspondence courses. (Paras. 820, 821.)

List of recommendations

175. The Council for National Academic Awards should be set up immediately so that degrees can be awarded to those taking degree level courses outside the universities. (Para. 823.)

Co-ordination

176. The government should take the initiative in co-ordinating the dissemination of information about opportunities in full-time higher education as a national information service, which should be established immediately. (Para. 825.)

177. The Minister of Arts and Science should be appointed forthwith to act in the first place as minister co-ordinating action by the ministries concerned, the Grants Commission and the Committee of Vice-Chancellors and Principals. (Para. 826.)

178. The Consultative Council should be established forthwith to appraise the adequacy of measures taken. (Para. 826.)

We must not bring our Report to a close without expressing our sincere gratitude to all those at home and abroad who in various ways have helped our inquiries. More detailed acknowledgement of the help we have received will be found in the Annex to this volume: a list of those who have given evidence is included. In this place we should like to thank explicitly those ministers of the countries we visited who did so much to make our visits fruitful and enjoyable, in particular M. Michel Debré, then Prime Minister of France, and M. Lucien Paye, Minister of National Education; Mr. V. P. Elyutin and Mr. M. A. Prokofiev, Minister and Deputy Minister of Higher and Specialised Secondary Education in the Soviet Union; Herr R. Voigt, President of the *Kultusministerkonferenz* in the Federal German Republic; and Herr R. Edenmann, Minister of Education and Ecclesiastical Affairs in Sweden. In the United States, and in other countries, our distinguished academic and official hosts were too numerous to mention here, but we can acknowledge with gratitude the trouble they took on our behalf.

We wish also to thank our assessors, Sir Keith Murray, Chairman of the University Grants Committee, Mr. A. A. Part of the Ministry of Education (who succeeded Mr. R. N. Heaton in June, 1961), Mr. H. H. Donnelly of the Scottish Education Department and Mr. J. P. Carswell of H.M. Treasury, as responsible for university grants. Their advice and that of their colleagues, given with complete disinterestedness and candour, has stimulated our thought and enabled us to avoid serious errors. We owe a great debt to their accumulated wisdom and experience.

List of recommendations

Finally, we wish to put on record our deep obligation to our two secretaries, Mr. P. S. Ross of H.M. Treasury and Mr. B. Gerrard of the Ministry of Education. We have already indicated the immense debt we owe to Professor C. A. Moser, the architect of our surveys and our statistics. We are also under heavy obligation to Miss B. S. Knott, Mr. J. R. Jameson and Mr. W. K. Reid; and to Mr. P. R. G. Layard, who, with Miss E. White, carried out the major share of our research programme. Only those who have attempted, as we have, to do in two-and-a-half years what more properly should have taken five will realise the nature of the strain that our demands have inflicted on them; and it has been in the give-and-take of consultation with them that many of our most fruitful ideas have arisen. We wish also to thank Miss E. Lyall, personal assistant to the secretary, who gave us unfailing service throughout our work, and Mr. R. W. Lewis, Mrs. F. M. Schumann, Miss M. G. Harries, Mr. J. Ferguson, Mr. S. G. Batten, Mr. R. G. Boyce, Mr. E. Walls, Mrs. D. C. Taylor and Mr. M. O'Callaghan. Without the skilled assistance of all the staff who served us at different times, often without regard to convenience or even health, our work would never have been completed.

ROBBINS (*Chairman*)

D. S. ANDERSON

KITTY ANDERSON

A. CHENEVIX-TRENCH

JAMES DREVER

H. L. ELVIN

HELEN GARDNER

PATRICK LINSTEAD

P. R. MORRIS

HAROLD C. SHEARMAN*

R. B. SOUTHALL

P. S. ROSS (*Secretary*)

B. GERRARD (*Assistant Secretary*)

23rd September, 1963.

* Signed subject to the Note of Reservation on page 293.

NOTE OF RESERVATION ON ADMINISTRATIVE ARRANGEMENTS

BY

MR. H. C. SHEARMAN

The questions discussed in Chapter XVII include some of the most difficult on which to decide. The various alternatives are clearly set out ; and it is with reluctance that I find it necessary to indicate the main reasons why I have not found myself in entire agreement with the recommendations.

There is, as I see it, no difference on essentials, but only on machinery. The question is by what means government participation in promoting and co-ordinating higher education can most effectively be organised so as to ensure that the fullest development is secured, while maintaining and, indeed, strengthening the academic autonomy which, it is agreed, is not only a treasured heritage but a necessity if teaching and research at all levels are to flourish. The Grants Commission as the keystone of academic freedom is not, of course, in question. My concern is with the quite separate question of ministerial responsibility.

I see the educational system, and not merely the area which we have been charged to examine, as a coherent whole, in which no section can prosper if the others are failing and in which the actions of each must inevitably affect the rest. It would be easy to argue this at length but I shall assume that that is hardly necessary. If this is true, it seems to me that close links between higher education and the rest of the education system are essential, that there is some need for improvement as things are now, and that any new system which had a tendency to widen rather than to bridge existing gaps would, in the long run, prove unsatisfactory.

Co-ordination is necessary ; and I am not convinced by the measures proposed in paragraphs 792 to 803 to achieve it. A complicated set of interlocking committees and joint committees at central government level, with final responsibility shared between three ministries, would be liable to produce delay and compromise. What is said in paragraph 743 of Chapter XVII about the greater efficiency of one integrated administrative body is surely relevant here too. What is needed is that the minister who has to sustain with the Treasury and in Cabinet the financial needs of the universities and other related institutions shall be familiar with the complementary requirements of the schools, and *vice versa*. What is to be feared is that each will be fighting for his own hand and both may suffer. The impact of this situation on the schools, whose needs are and are likely to continue to be insistent, could be serious—particularly if one result should be that the Minister of Education were supplanted as a member of the Cabinet by the minister regarded as responsible for the 'senior' institutions.

Note of Reservation

But the indirect effects on the universities could well be potentially unfortunate. For it is impossible that higher education should flourish if the earlier stages languish.

There is an important sense in which education is one and indivisible—including that most advanced stage of education which consists in independent inquiry, reflection on what is known, and the charting and exploration of what is unknown or as yet imperfectly apprehended. I know that it is said that, at this level, it is not education but something different: but for my part I do not know how to draw the line. The 'essential unity of knowledge' is not limited to universities and museums.

With this thought of the unity of education uppermost, I should wish to see the universities take up a position of leadership and inspiration which would promote the health of all, by identifying themselves with the whole, while maintaining, as they must, the values for which they stand and which they could do much to foster elsewhere. The 'sense of common purpose' referred to in paragraph 776 is becoming more and more desirable.

In addition to the pressures on the schools, which are explained in Chapter VII, and the need for greater mutual understanding at this level of relationships, there is the cognate question of the rest of the further education system. As the Report shows, it is not possible to divorce many parts of this system from the schools: much overlapping at this intermediate stage is inevitable. But there are also strong reasons why a break in the continuity of responsibility for education here 'at its most sensitive point' would be most unhappy. Even if the Report is adopted in full, and vigorous, immediate and sustained action is forthcoming, there will still be a very competitive situation in the university sector as far ahead as we can see. In these conditions, the further education system provides at once the safety-valve and the growing point. Under our proposals there will still be open to students avenues to qualifications, including degrees, through the Regional and Area Colleges; and for some of these institutions there will be the stimulus of the possibility of developing to higher levels. But they will be sorely tempted to feel that they—and with them the local part-time students for whom they provide—do not 'belong'.

Continuity, then, is essential between the schools, further and part-time education, and full-time higher education. The students would gain confidence if such a continuity visibly existed; and there would be, what is no less important, positive encouragement to the movement of staffs in both directions.

This principle of continuity is nowhere more important than in the sphere of teacher training. Here what the Report aims to achieve is the continued raising of the standards of work in the colleges and an improvement of their status, while retaining close contact with the administration of the schools. This aim would be more surely reached, in my judgment, if co-ordination at the higher level were to be through a single Ministry. The effect of the recommendations in Chapters XVII and IX taken together is that the Colleges of Education will have no immediate administrative

Mr. H. C. Shearman

contact with those who have major responsibility, central and local, for the schools. I feel bound to record my own convictions that what is needed in the period of expansion immediately ahead is that there should be give-and-take, co-operation and goodwill in the fullest measure between the universities and the local education authorities in the service of the teaching profession.

It may well be that some local education authorities have not shown a sufficiently liberal attitude to the colleges; if so, it can and should be changed. On the other hand in many material respects (for instance, the provision of residence), the Ministry of Education and local education authorities have no need to apologise for their record; and, on the other hand, if Training College students have rarely been recognised for degrees, that has not been the fault of the education authorities.

The pressing need in this sector of higher education is not only to consolidate and extend the academic gains of the three-year course (a bold and far-sighted venture) but also to carry through the great expansion of numbers on which we have embarked. In most of the cases with which we are concerned the local education authorities have the staffs and technical resources to contribute to this development as they are already demonstrating and as they have done in the past. They know the need better than most and they have a vital interest in the supply of teachers of suitable quality and in adequate numbers. I believe their resources, both of know-how and of goodwill, could be harnessed to the common task if the universities would consent to create their Schools of Education and provide for degrees at the earliest possible date without disrupting the administrative partnership which already exists. All this would be easier with recognition of a single system.

I submit therefore that a single Minister for Education—or Secretary of State if that title is preferred (though I find it rather less euphonious)—with one or two Ministers of State to assist him is the more satisfactory answer. He would take over the present sphere of responsibility of the Minister of Education and that of the Chancellor in respect of the University Grants Committee, and conceivably some of the other functions alluded to in Chapter XVII, but he would be at the head of a new department from which a forward-looking outlook might be expected. He would, we should hope, adopt in his department the administrative styles appropriate to the different parts of the wide field he would be called upon to survey. Devolution—on the one hand to the Grants Commission with its wide area of independent action, and on the other (through general grant or other appropriate financial arrangements) to the local education authorities and governing bodies—would be the keynote of his Ministry.

As a matter of practical politics it might well be that such an arrangement would be preferable to creating a ministerial post whose relatively light duties might either be unattractive as a full-time occupation for a senior member of the government or alternatively might even prove an irresistible

Note of Reservation

temptation to excessive interference with the affairs of the Grants Commission.

A new situation should be faced with new confidence rather than with old fears and suspicions, and we should hope that those who lead in the universities would recognise (as some of them have done) that such a future would be fraught with more possibilities than pitfalls. It would, I believe, win for them the degree of public support which, more than any mechanical safeguards, is necessary if they are to move triumphantly into a new age.

HAROLD C. SHEARMAN

23rd September, 1963.

ANNEX

The procedure of the Committee

THE COLLECTION OF FACTUAL MATERIAL

1. We explained in Chapter I of our Report the reasons that led us to undertake a far-reaching programme of fact-finding and statistical research. This work was needed to provide a background for our deliberations and to help us in formulating our recommendations. But we decided to go beyond this. It seemed to us desirable to facilitate future discussion and planning of higher education by presenting in a comprehensive series of appendices as full an analysis as possible of the present situation and of recent trends of development.

2. There are five appendices, each of which contains statistical and other factual material, as follows:

Appendix One : The demand for places in higher education

Appendix Two : Students and their education

Appendix Three : Teachers in higher education

Appendix Four : Administrative, financial and economic aspects of higher education

Appendix Five : Higher education in other countries.

Appendices One, Three and Four are published simultaneously with our Report ; Appendix Two, which will be in two volumes, and Appendix Five will be published later. The contents of the Appendices are indicated in the Table of Contents of our Report, on pages xi-xiii.

3. The material in the appendices stems from many sources. It comes, first, from the six major sample surveys that we commissioned. Second, it comes from several other inquiries of lesser scope, which nevertheless provided original material. Third, the appendices contain much statistical information obtained from government departments ; some of this material was already in published form, but much of it was provided specially for us. Fourth, there are the results of academic and other studies, in some cases provided specially for us ; and material from numerous memoranda sent to us in the course of our work. Finally, in Appendix Five we assemble material obtained from a number of other countries, some of it collected through the good offices of Her Majesty's representatives abroad ; this has been supplemented by our own inquiries both by correspondence and orally during our overseas visits.

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Major surveys

4. Our most ambitious undertaking was the commissioning of six sample surveys. Each was designed to fill numerous gaps in our factual knowledge; their essential purposes are summarised below.

Surveys of students in higher education

We commissioned four sample surveys of students in higher education: of undergraduate, and of postgraduate, students in universities; of students in Training Colleges and Colleges of Education in Scotland; and of students on advanced courses in further education. All these surveys had broadly similar objectives. They were needed, in the first place, to provide some basic facts about present students, such as their social and educational background and their qualifications at the time of entry to higher education. These surveys were also intended to throw light on such matters as applications by students to different types of institution, the factors influencing their choice of course of study, the organisation of the courses they were pursuing, the teaching and supervision they received, and their career intentions.

Survey of university teachers

In conjunction with the Committee on University Teaching Methods (appointed by the University Grants Committee and under the chairmanship of Sir Edward Hale) we undertook a sample survey of university teachers. Here we had three main aims. First, we wanted to establish facts about the structure of the university teaching profession, in terms of grade and age distribution, qualifications, mobility, recruitment and so on. Second, we wanted to make some broad estimates of the proportion of the university teacher's working time spent on each of various professional activities. Third, we wanted general information about teaching methods: the detailed questions in this part of the survey were designed primarily to meet the requirements of the Hale Committee.

Survey of 21-year-olds

To help us in estimating the future demand for higher education we undertook a survey designed to throw light on the factors influencing present demand. This survey covered a sample of 21-year-olds, some of whom had entered higher education, but most of whom had not. This survey showed the influence that such factors as parents' occupations, parents' education, size of family, and type of secondary school had upon whether or not a young person entered higher education.

5. Table A (on page 299) sets out the main features of the surveys: the technical particulars needed in assessing the detailed results are given in a technical annex to each survey, which appears in the relevant volume of the appendices. In these annexes will be found a description of population coverage, sampling frame, sample design, non-response, interview and questionnaire procedure, guidance on sampling errors, any information on accuracy, and so on. These annexes also contain the survey questionnaires.

TABLE A
THE MAJOR SURVEYS

NAME AND ABBREVIATION	COVERAGE (in broad terms) Great Britain	SIZE OF SAMPLE (selected)	SIZE OF SAMPLE (analysed); RESPONSE RATE	METHOD OF INQUIRY	DATE OF FIELDWORK	SURVEY ORGANISATION	APPENDIX containing main results and technical annex
<i>Undergraduate Survey</i> (U.G. Survey)	Full- and part-time university students (undergraduates)	4,224	4,095 97%	(a) Interviews (b) Students filled in a questionnaire on methods of teaching (c) Registrars filled in a questionnaire in respect of students	January- March 1962	Social Survey (Central Office of Information)	Two (B)
<i>Postgraduate Survey</i> (P.G. Survey)	Full- and part-time university students (postgraduates)	1,025	962 94%				
<i>Teacher Training Survey</i> (T.T. Survey)	Students in Training Colleges and Colleges of Education	1,588	1,556 98%	(a) Interviews (b) Students filled in a questionnaire on methods of teaching	January- February 1962	ditto	Two (B)
<i>Further Education Survey</i> (F.E. Survey)	Advanced students in further education (full-time and part-time)	5,685	4,978 88%	(a) Interviews (b) Full-time and sandwich students filled in a questionnaire on methods of teaching	February- May 1962	ditto	Two (B)
<i>University Teachers Survey</i> (U.T. Survey)	Full-time members of academic staff	3,498	3,006 86%	Postal questionnaire	February- March 1962	Attwood Statistics Ltd.	Three, Part I
<i>Survey of 21-year-olds</i> (No abbreviation)	Age group born between 1.9.1940 and 31.8.1941	4,232	3,169 75%	Interviews	March- May 1962	Research Services Ltd.	One, Part II

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6. An immense amount of information has come out of these surveys, but in order to keep the appendices to a reasonable size, the analyses we are publishing have been confined to the most important topics. We have no doubt that these surveys would provide data for many other profitable analyses. For the benefit of future research workers we hope in due course to deposit sets of the full survey tables and other data in the places listed in paragraph 19 in connexion with the depositing of memoranda of evidence.

Other special inquiries

7. We also undertook a number of other inquiries and surveys which, although on a smaller scale, nevertheless represented special collections of original data.

Courses and internal government

Inquiries on a number of topics were addressed to all universities and to a number of Training Colleges and institutions of further education. These provided a major source of material on two broad topics in particular: the nature of the courses of study undertaken by students and the internal government of institutions of higher education. These topics are dealt with respectively in Appendix Two (B), Part III and Appendix Four, Part I.

Professional education

A large number of professional bodies gave information from their records about their membership. This was supplemented by a sample survey of students and recently-admitted members of four professional associations; this survey provided further information about the educational background of students and the methods of study for professional qualifications. This material is to be incorporated in Appendix Two (B), Part V.

Wastage in further education

Inquiries were addressed through the Ministry of Education to Colleges of Advanced Technology and Regional Colleges. The Scottish Education Department provided corresponding data about Central Institutions. This information forms the basis of the discussion of wastage in full-time degree courses and courses leading to the Diploma in Technology and the Associateship of Scottish Central Institutions, which will appear in Appendix Two (A), Part IV.

G.C.E. 'A' level marks of entrants to higher education

Local education authorities were asked to record the grades of 'A' level pass held by school leavers entering different sectors of higher education. This information, which was collected on our behalf by Research Services Limited, will be presented in Appendix Two (B), Part I.

Teaching hours in Training Colleges and further education

Institutions provided us with information about the total hours of teaching carried out by their staff in a week in February, 1962. This information is summarised in Appendix Three, Parts II and III.

Entry to higher education from different local education authority areas

The National Foundation for Educational Research undertook for us the basic analysis of data designed to describe differences between local authorities in respect of the proportion of young people in their areas who entered higher education. The subsequent analysis proved complex, and, in the time available, it has been possible to present only a small part of the results; these are given in Appendix One, Part II.

Other statistical and factual material

8. Apart from the survey results, the Report and the appendices contain the fruits of a great deal of statistical work carried out by our Secretariat under the detailed guidance of our Statistical Adviser and in collaboration with government departments. In two cases this collaboration involved the adaptation of major departmental surveys: the University Grants Committee modified and brought forward by one year its inquiry into student wastage (Appendix Two (A), Part IV) and the Ministry of Education extended in several respects its survey of school leavers (Appendix One, Part II). Most of this statistical work, however, involved fresh, and often complex, analysis of routine information. There are examples of this type of analysis throughout the appendices. In a few cases, statistical exercises of major proportions were involved: the projections of places in higher education (Appendix One), the study of the stock of qualified manpower (Appendix Four) and the analysis of costs (Appendix Four) are the outstanding examples.

9. The appendices also contain material from other sources too numerous to list here. Much use has been made of published official statistics, notably the returns of the University Grants Committee and of the Education Departments, especially the *Statistics of Education* volumes published by the Ministry of Education. A number of academic and other studies have also proved of considerable value; in some cases the results of these studies were made specially available to us. We are particularly grateful to Professor D. V. Glass and his colleagues at the London School of Economics for letting us have a series of papers on a follow-up survey of university entrants in 1955; to Dr. J. W. B. Douglas of the Medical Research Council Unit at the London School of Economics for making available the results of a study of a cohort of children born in 1946; to Professor P. Vernon and Mrs. Jean Floud for sending appraisals of the existing evidence on the pool of ability; to Dr. Ethel (Lady) Venables, who also provided evidence on this topic; and to Professor R. K. Kelsall for providing an appreciation of the evidence on different methods of selection for higher education. Finally, the compilation of the appendices has been aided by numerous memoranda and papers sent to us in evidence.

10. Appendix Five will acknowledge the help we received in connexion with our inquiries in other countries. Apart from the assistance of heads of governments and ministers, the various national statistical organisations and ministries of education deserve special mention here; they not only provided us with much information not readily available in published

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form but in a number of cases made special analyses for us. Above all we are indebted to Her Majesty's representatives abroad, to individual ambassadors and their staffs and to representatives of the British Council, who not only facilitated our inquiries by accompanying us on our visits, but also undertook directly the collection and editing of much factual material. To international organisations, and in particular to the Organisation for Economic Co-operation and Development, we also owe a debt of gratitude for valuable help in providing data and for making it possible for our Secretariat to have direct access at their headquarters to sources of information potentially useful to us.

11. The preparation of the appendices has involved for a great many people much hard work. We cannot thank them individually here. We would, however, place on record two general acknowledgements. First, we wish to thank the organisations responsible for our major surveys, and their staff members who worked on them: the Government Social Survey; Research Services Limited and Attwood Statistics Limited*; the National Foundation for Educational Research, and the professional institutions which helped in the studies mentioned in paragraph 7 above. We are also most grateful to all those, individuals as well as organisations, who co-operated in these surveys by providing information.

12. In conclusion, we wish to express our gratitude to those in government departments who, in collaboration with our Statistical Adviser and our Secretariat, carried out a great deal of the statistical work. At the outset of our activities Sir Harry Campion (Director of the Central Statistical Office) brought into being an interdepartmental group on Statistics of Higher Education; this group was composed of representatives from the Central Statistical Office, the Ministry of Education, the Scottish Education Department, the Treasury, the University Grants Committee, the Ministry of Labour, the Office of the Minister for Science, the General Register Office, the Government Social Survey, our Secretary and our Statistical Adviser. Our statistical programme and its various projects were discussed by the group at every stage. The programme could not have been carried out without its help, and we should like to express our warmest thanks to its chairman and to all its members for their invaluable support.

VISITS ABROAD

13. When we began our work we instituted inquiries in many countries overseas through Her Majesty's Embassies and through the British Council. Our aim was to collect factual information from which valid comparisons with British higher education could be made. Shortage of time and, in some cases, incomplete data have prevented our making a detailed report on all the countries of which we made this initial inquiry, but in Appendix Five will be found a full account of higher education in some ten countries, as well as occasional references to the higher education system in others.

* In these organisations, we wish to thank particularly Mr. D. A. C. Heigham and Mrs. Lillian Geach.

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14. Our initial inquiry gave an indication of the topics in which we were interested and formed a useful starting point for discussions in the seven countries we visited. The details of our visits are as follows:

<i>Country</i>	<i>Length of visit</i>	<i>Date of visit</i>
Switzerland	4 days	July, 1961
Netherlands	4 days	January, 1962
France	5 days	February, 1962
Federal German Republic	5 days	March, 1962
United States of America	21 days	April/May, 1962
Union of Soviet Socialist Republics	12 days	June, 1962
Sweden	3 days	October, 1962

15. During these visits British representatives abroad arranged for us meetings with ministers and with the head or senior officials of the ministries, statistical offices, independent organisations and foundations concerned with various aspects of higher education, of research and of manpower and industrial training. In countries with federal systems of government we had meetings with regional as well as with national organisations. In addition we visited many universities and other institutions of higher education, including those concerned with technology and the training of teachers. We were received by the heads of the institutions concerned and also held discussions with many of the academic staff. Our discussions, together with the large amount of written material we collected, are the main source of our comments in Chapter V of the Report. On our visit to the Soviet Union, Professor C. C. Butler, F.R.S., joined us at our invitation.

WRITTEN AND ORAL EVIDENCE

16. Shortly after our appointment we invited evidence from many of those whom we expected would be able to help us in our work. At the same time we made it publicly known that we were ready to receive written evidence from all who wished to offer it. The document on the scope of our inquiry issued to invited witnesses and those who volunteered to give evidence is reprinted at the end of this Annex.

17. During the months immediately following our appointment, and while we were awaiting formal written evidence, we were greatly helped by informal talks with the following, many of whom also submitted notes on general or particular topics within our terms of reference or supplied copies of relevant papers which they had prepared for other purposes: Sir William Alexander, Mr. Noel Annan, Sir Eric Ashby, Mr. (now Sir Leon) Bagrit, Dr. B. V. Bowden, Sir Robert Cockburn, Sir Geoffrey Crowther, Professor R. S. Edwards, Mr. A. A. Evans, Sir Gilbert Flemming, Mr. J. S. Fulton, Lord James of Rusholme, Sir Willis Jackson, Professor

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M. V. C. Jeffreys, Sir Douglas Logan, Dr. Kathleen Olierenshaw, Miss B. Paston Brown, Mr. A. D. C. Peterson, Sir Leslie Rowan, Dr. J. E. Salmon, Sir Charles Snow, Sir Gordon Sutherland, Dr. Lucy Sutherland, Dr. P. F. R. (now Sir Peter) Venables, Mr. H. P. Wood, and Baroness Wootton of Abinger.

18. We also had most valuable informal talks during those early months with the Chairman of the University Grants Committee, senior officials of H.M. Treasury, the Ministry of Education, H.M. Inspectorate, the Scottish Education Department and the Office of the Minister for Science. We took advantage of the presence in London of Mr. Julius A. Stratton, President of the Massachusetts Institute of Technology, Mr. Lee A. DuBridge, President of the California Institute of Technology and Mr. Wallace E. Sterling, President of Stanford University, for informal discussions on some of the main issues affecting higher education in the United States.

19. In all we received over 400 documents of written evidence. They came from many sources, from institutions of higher education and from individual teachers and groups of teachers in them, from learned bodies, from professional and other associations, from industry and industrialists, from schools, from schoolmasters and schoolmistresses, from students in all branches of higher education and from parents, former teachers and former students. Our terms of reference embraced the whole pattern of higher education and many of those who submitted written evidence wrote about a single corner of the higher education field, or even a single aspect of work in that part of the field. All these documents were of interest and, however specialised their content, there were few which did not yield some point of general application. Fruitful as the study of this great mass of evidence has been, we think that to publish it all would place before the general reader so large a series of volumes of evidence as to deter him from the study of any. We shall therefore publish only the following: the records of the oral evidence we received, the written evidence on which this oral evidence was based, and a small number of other memoranda submitted to us. Arrangements are being made for most of the rest of the written evidence we received to be available forthwith for public inspection in the following places: the Public Record Office, London; the Scottish Record Office, Edinburgh; the National Library of Wales, Aberystwyth; the University of Bristol; the University of Manchester; and the London School of Economics.

20. The hearing of formal evidence began in September, 1961. In all we heard evidence from 90 organisations and 31 individual witnesses; eight of the discussions were resumed on subsequent occasions. Some of these discussions gave rise to invitations for the submission of supplementary evidence. In all cases the discussion took as the point of departure the written evidence of the witness. The written memoranda and the oral evidence are therefore to be printed consecutively throughout the oral evidence volumes; supplementary written evidence will be printed after the oral evidence where it was received later, and will be followed in

turn by the record of any resumed discussion. We think that the general reader may find some interest in following the discussions as they unfolded for the Committee and as they reflected on each other, and this evidence is therefore to be printed in order of the discussions, irrespective of the date on which the memoranda were received. The organisations and individuals concerned were :

West Riding of Yorkshire Education Authority
 Professor N. F. (now Sir Nevill) Mott
 Mr. F. M. H. Markham
 Royal Institute of Chemistry
 Institute of Actuaries
 Mathematical Association
 Church of England Board of Education
 Church of England and Free Church Theological Group
 Dr. A. P. Rowe
 Lord Heyworth
 National Institute of Adult Education (England and Wales)
 Sir Sydney Caine
 Professor H. R. Hoggart
 Association of Teachers in Colleges and Departments of Education
 Methodist Education Committee
 National Union of Students
 Professor H. C. Dent
 National Froebel Foundation
 Sir John Cockcroft
 Sir Thomas Merton
 Royal Society
 Institute of Chartered Accountants in England and Wales
 Ruskin College, Oxford
 Dr. Cyril Bibby
 Law Society
 Architectural Association
 Institution of Production Engineers
 Institution of Chemical Engineers
 Advisory Council on Scientific Policy
 Agricultural Research Council
 Association of Technical Institutions and Association of Principals of Technical Institutions
 Professor R. S. Nyholm
 National Association of Head Teachers
 Fabian Society
 Professor L. C. Sykes
 Association of Municipal Corporations
 Federation of British Industries
 Association of Teachers in Technical Institutions
 Headmasters' Conference
 National Association of Schoolmasters
 British Academy
 Council of Legal Education
 National Council for Technological Awards
 National Union of Teachers
 County Councils Association
 Royal Institute of British Architects
 Association of Education Committees
 Committee of Principals of Colleges of Advanced Technology
 Professor Sir John Baker
 Association of Art Institutions
 Department of Scientific and Industrial Research
 Nature Conservancy
 Medical Research Council
 National Institute for Research in Nuclear Science
 British Institute of Management
 Scottish Union of Students
 Principals of Scottish Universities

Annex

Principals of Senior Central Institutions
Scottish Secondary Teachers' Association
Association of University Teachers (Scotland)
Scottish Schoolmasters Association
Counties of Cities Association (Scotland)
Association of County Councils in Scotland
Educational Institute of Scotland
Scottish Council for the Training of Teachers
Headmasters' Association of Scotland and Association of Head Mistresses (Scottish Branch)
Association of Directors of Education in Scotland
Institute of Chartered Accountants of Scotland
Federation of British Industries (Scotland)
Institute of Physics and The Physical Society
Committee of Vice-Chancellors and Principals
Sir Cyril Hinshelwood
General Medical Council
Joint Advisory Committee on Engineering Education of the Institutions of Civil, Mechanical and Electrical Engineers
London University
Sir James Pitman and Mrs. Eirene White
Sir Leonard Owen and Dr. F. A. Vick
Association of Chief Education Officers
Royal College of Veterinary Surgeons
Professor C. F. Carter and Professor B. R. Williams
Catholic Education Council
Association of University Teachers
Foundation for Management Education and U.K. Advisory Council on Education for Management
Professor D. V. Glass and Dr. J. W. B. Douglas
Socialist Educational Association
Conservative and Unionist Teachers' Association
Trades Union Congress
General Nursing Council for England and Wales
Joint Committee of the Four Secondary Associations
Conference of Heads of University Departments of Education
Council for Education in the Commonwealth
London County Council
Professor Sir Hans Krebs
Conference of Directors of Institutes of Education
Sir Noel Hall
Workers' Educational Association
British Association (Sociological Section)
Law Society of Scotland
Sir Eric Ashby
Dr. G. E. F. Chilver
Association of British Chambers of Commerce
Welsh Secondary Schools Association
Professor R. I. Aaron
University of Wales School of Education
Welsh Joint Education Committee
Principals of Colleges of the University of Wales
Professor Ely Devons
British Council
National Advisory Council on the Training and Supply of Teachers
Scottish Education Department
Professor Gilbert Ryle
Professor H. R. Trevor-Roper
Ministry of Education
H.M. Treasury
Sir Charles Morris
University Grants Committee
Delegation representing the Regional Advisory Councils for Further Education

21. Memoranda of evidence from the following government departments, organisations and individuals are also to be published :

Government departments

Department of Technical Co-operation
Ministry of Agriculture, Fisheries and Food
Department of Agriculture and Fisheries for Scotland (submitted jointly with the Scottish Agricultural Colleges)

Organisations

Church of Scotland Education Committee
General Dental Council
General Nursing Council for Scotland
National Society for Art Education
Pharmaceutical Society of Great Britain

Individuals

Mr. Alan Bullock
Hon. Lord Cameron
Mrs. Jean Floud
Dr. A. Harvey
Sir Hector Hetherington
Dr. W. B. Inglis
Professor R. K. Kelsall
Dr. M. G. Kendall
Dr. D. S. Lees
Dr. D. M. McIntosh
Dr. Nicolas Malleson
Dr. Thomas Parry
Professor A. T. Peacock and Mr. J. Wiseman
Dr. A. R. Prest
Dr. H. J. L. Robbie
Sir James Robertson
Dr. Ethel Venables
Professor P. E. Vernon

22. Memoranda of evidence were also received from the following organisations and individuals :

Organisations

Advisory Centre for Education
Association of Lecturers and Assistants of the University of Glasgow
Association of Principals of London Polytechnics
Association of Principals of Recognised Training Colleges of Domestic Science
Association of Scientific Workers
Association of Social Anthropologists of the Commonwealth
Association of Teachers in Colleges and Departments of Education—Rural Studies Section ;
further evidence was also submitted by the above in conjunction with the Association of Agriculture and the Association of Agricultural Education Staffs
Association of Teachers of Domestic Subjects
Association of Teachers of Management
Association of Teachers in Technical Institutions—London Division
Association of Teachers in Technical Institutions—Stafford District Branch
Association of Tutors in Adult Education
Association of University Teachers—Aberdeen Inter-Faculty Group
Association of University Teachers—Bedford College Local Association
Association of University Teachers—Cardiff Local Association
Association of University Teachers—Glasgow Local Association
Association of University Teachers—Imperial College of Science and Technology Local Association
Association of University Teachers—Leeds Local Association
Association of University Teachers—Manchester Local Association
Association of University Teachers—Nottingham Local Association
Association of University Teachers—Reading Local Association
Association of University Teachers—Royal College of Science and Technology, Glasgow, Local Association

Annex

Association of University Teachers—School of Oriental and African Studies,
 Local Association
 Association of University Teachers—Sheffield Local Association
 Battersea College of Technology
 Bedford College Union Society
 Biochemical Society
 Biometric Society—British Region
 Birmingham School of Music
 British Conference on Automation and Computation
 British Dietetic Association
 British Federation of University Women, Ltd.
 British Institution of Radio Engineers
 British Polarographic Research Institute
 British Psychological Society, Social Psychology Section Committee and others
 British Student Health Association
 British Universities Film Council
 Cambridge Institute of Education
 Sir John Cass's Foundation
 Catholic Workers College, Oxford
 Chelsea College of Science and Technology
 City of Birmingham College of Advanced Technology—Governors
 City of Birmingham College of Advanced Technology—Guild of Associates ;
 further evidence was also submitted by the above in conjunction with the
 academic staff of the College
 Coleg Harlech
 College of Aeronautics, Cranfield
 Colleges of Domestic Science at Edinburgh, Glasgow, and Aberdeen
 College of Estate Management
 College of Preceptors
 Committee for the Advancement of Education and of the Status of the Teaching
 Profession
 Committee of Directors of Research Associations
 Committee of Principals of the University of London Institute of Education
 Communist Party of Great Britain
 Conference of Art Teacher Training Centres
 Conference of Lecturers in Religious Education
 Co-operative Union Limited, Education Executive
 Council of Ironfoundry Associations
 Dudley Training College for Teachers, Library Committee
 Dundee College of Education, Board of Studies
 Edinburgh Association of University Teachers
 Electrical and Electronic Manufacturers Joint Education Board
 Essex Institute of Agriculture, Chelmsford
 Executive Councils' Association (England), National Health Service
 Fircroft College, Birmingham
 'Forum' Editorial Board
 Free Church Federal Council Education Committee
 Glasgow History Teachers' Association
 Harper Adams Agricultural College
 Hillcroft College
 Horticultural Education Association
 Incorporated Society of Musicians, School Music Committee
 Institute of Almoners
 Institute of Cost and Works Accountants
 Institute of Landscape Architects
 Institution of Engineering Inspection
 Institution of Structural Engineers
 Institutional Management Association
 Joint Committee for Science and Education
 Joint Training Council for Social Work
 Jordanhill College of Education, Chapter V. Students' Committee
 Leeds University Union
 Liberal Party
 Library Association
 Loughborough College of Technology, The Principal, Vice-Principal, and Heads
 of Departments
 Methodist Church Ministerial Training Department
 National Federation of Professional Workers
 National Rural Studies Association

Annex

Northern Advisory Council for Further Education
Northern Polytechnic
North-Western Regional Advisory Council for Further Education
Nottingham and District Technical College, Principal and Heads of Departments
Paisley Technical College, Board of Governors
Paisley Technical College, Staff Association
Plastics Institute
Polytechnic, The, London, W.1
Proposed University for East Stirlingshire, Campaign Committee
Regional Advisory Council for the Organisation of Further Education in the
East Midlands
Regional Advisory Council for Technological Education, London and Home
Counties
Residential Colleges Committee
Royal Aeronautical Society, Education Committee
Royal Agricultural College, Cirencester
Royal Astronomical Society
Royal College of Nursing, Education Committee
Royal Meteorological Society
Rugby College of Engineering Technology
Saltire Society
Scottish Association of Certificated Women Teachers
Seale Hayne Agricultural College
Shuttleworth College
Society of British Aircraft Constructors, Ltd.
Society of Chemical Industry
Society of Instrument Technology
Society of Public Teachers of Law
Southern Regional Council for Further Education
Staff Association of the Edinburgh College of Art
Standing Conference for Amateur Music, Teacher Training Sub-Committee
Standing Conference of National and University Libraries
Student Christian Movement of Great Britain and Ireland
Studley College
Tavistock Institute of Human Relations
Clerks to the Technical Teacher Training Colleges at Bolton, Huddersfield and
Wolverhampton
Town Planning Institute
United Kingdom Federation for Education in Home Management
Universities Council for Adult Education
Universities Physical Education Association
University of Birmingham, Non-Professorial Staff Executive Committee
University of Edinburgh
University of Exeter Guild of Students
University of Glasgow
University of Keele
University of Leicester, Non-Professorial Staff Association
University of London, Bedford College, Department of Sociology, Social Studies
and Economics
University of London, Birkbeck College, Faculty of Arts
University of London Institute of Education, Students' Association
University of Manchester, Board of the Faculty of Theology
University of Manchester, School of Education
University of Nottingham
University of Sheffield Union of Students
Warwickshire County Education Committee
West Midlands Advisory Council for Further Education
Woolwich Polytechnic
Yorkshire Council for Further Education

Individuals

Mr. W. Allen
Mr. G. C. Archibald jointly with Dr. B. A. Corry and Professor R. G. Lipsey
Sir Thomas Armstrong
Mr. N. J. Arnold
Dr. K. R. Ashby
Mr. J. B. Bamborough
Mr. A. Bentley and Mr. W. K. Simpson

Annex

Professor W. G. Bickley
 Mr. E. Bouffler
 Dr. B. V. Bowden
 Mr. A. J. H. Brown
 Mr. J. R. Bunting
 Mr. H. J. Butt
 Mr. W. M. Calder
 Mr. W. Carnegie jointly with Mr. A. H. Beckett, Mr. L. W. Derry, Dr. J. F. J. Dippy, Dr. L. R. B. Elton, Mr. W. H. George, Mr. C. C. A. Gibbs, Mr. M. D. Hatton, Mr. C. C. Hentschel, Mr. M. F. Lockett, Mr. W. F. Lovering, Mr. A. E. Ludlam, Mr. D. M. Martyn Jones, Dr. J. E. Salmon, Mr. W. E. Smith and Mr. S. R. Tailby
 Dr. G. F. Chadwick jointly with Mr. I. S. Melville, Mr. D. G. Robinson and Mr. J. B. McLoughlin
 Professor W. Walker Chambers
 Professor A. Charlesby
 Mr. D. N. Chester
 Dr. W. Chester jointly with Dr. P. G. Drazin, Professor S. Körner, Professor F. C. Frank, Dr. J. B. L. Powell, Mr. J. K. Grodecki and Mr. J. C. Shepherdson
 Mr. F. Christie
 Mr. J. E. Cleverly jointly with Mr. P. Etherington, Mr. L. J. Hope, Mr. R. Loveday, Mr. G. A. Mellor, Mr. R. T. C. Satterford, Mr. D. G. J. Sellwood, Mr. J. B. Spooner, Mr. R. W. Szymanski, Mr. F. Taylor, Mr. J. Tebbs and Mr. B. C. Wearn.
 Mr. K. G. Collier
 Mr. G. R. Cooper
 Professor D. P. Costello
 Dr. S. F. Cotgrove
 Mr. H. Craig
 Professor A. Davies
 Mr. E. J. Dearnaley
 Mr. W. McL. Dewar
 Mr. T. C. Dudson
 Mr. H. C. Edey
 Dr. L. R. B. Elton
 Mr. U. F. J. Eyck
 Mr. G. Fejer
 Dr. J. F. Ferguson
 Mr. D. Field jointly with Mrs. L. D. Burroughs, Mr. J. Newick, Mr. C. Haggarty, and Mr. P. Rhodes
 Professor B. Ford jointly with Mr. N. Fisher, Mr. F. W. Jessup and Mr. E. M. Hutchinson
 Mr. W. K. Ford
 Mr. J. Freyne jointly with Mr. J. N. Fairhead, Mr. F. M. Willis, Mr. C. T. Sandford, Dr. D. F. Bratchell, Mr. N. A. Arnold, Mr. A. M. Duncan, Mr. A. C. Leyton and Mr. H. N. Sheldon
 Mr. G. A. A. Grant
 Mr. A. P. Griffiths jointly with Mr. B. C. Brookes, Dr. J. C. E. Jennings, Mr. J. S. Read and Professor A. C. Taylor
 Mr. J. Hall
 Dr. J. M. Hammersley and Dr. H. Levine
 Mr. A. R. W. Harrison jointly with Mr. C. S. G. Phillips, Dr. J. M. Roberts, Rev. C. S. C. Williams, Mr. H. V. D. Dyson, Mr. R. H. C. Davis, Dr. R. O. C. Norman, Mr. J. Black, Dr. J. R. L. Highfield, Dr. D. S. Parsons and Dr. J. M. Baker
 Mr. P. Havard-Williams
 Professor W. K. Hayman
 Dr. F. D. C. Henry
 Miss P. Higginbotham
 Mr. A. C. Hobson
 Mr. J. Holburn and Mr. R. D. Kernohan
 Professor S. E. Hollingworth jointly with Dr. T. Barnard, Dr. A. T. J. Dollar, Professor B. C. King, Dr. J. F. Kirkaldy, Dr. W. S. Pitcher, Dr. J. E. Prentice, Professor J. H. Taylor and Dr. M. K. Wells
 Professor J. H. Horlock jointly with Professor J. D. Craggs, Professor A. W. Hendry, Professor J. H. Preston, Professor W. S. Owen and Professor L. Rosenhead

Annex

Mr. K. Hoselitz
Mr. A. R. Ivatts
Mr. H. B. Jenkins
Mr. J. Johnston
Mr. M. Kaufman
Mr. B. Kaye
Mr. L. B. Keeble
Mr. N. J. Keen
Mr. D. C. A. Ker
Mrs. C. E. Kerswell
Mr. A. Keynes
Mr. I. M. Khabaza
Mr. M. Koster
Mr. W. Kretchmer and Mr. F. E. Thomas
Dr. A. N. Little
Mr. H. Lowry
Mr. H. Macfarlane Gibson
Mr. T. H. McGuffie
Mr. J. Mains
Mr. R. A. S. Manger
Mr. E. Maxwell Fry
Mr. A. J. Mayne
Dr. K. Mellanby
Mr. E. Moonman
Mr. D. R. Morrison
Mr. A. D. Munrow jointly with Mr. M. A. Madders, Miss B. N. Knapp, Miss
C. D. Roberts, Mr. W. J. Slater, Mr. D. D. Molyneux, Mr. W. J. Tuxworth,
Mr. K. H. Bonser, Miss S. Marshall and Mr. A. P. Page
Mrs. C. Nicholson
Professor P. H. Nowell-Smith
Lady Ogilvie
Mr. B. I. Palmer
Dr. G. D. Parkes
Mr. M. J. Pass
Dr. R. Pedley
Mr. A. D. C. Peterson
Professor G. R. Potter
Dr. G. R. Ramage
Professor G. H. Rawcliffe
Dr. C. A. Redfarn
Dr. M. E. Reeves
Mr. R. T. Rivington
Mr. C. S. Rolfe
Professor L. Rosenhead
Mr. P. G. Rossington
Sir Harold Roxbee Cox
Mr. C. S. R. Russell
Dr. J. A. Russell
Dr. D. E. Rutherford
Mr. R. Stuart Sanderson
Mr. N. T. Scott
Mr. G. Scutcheon
Mr. R. P. Sheldon
Mr. A. F. Shirley
Mr. E. H. Sidwell
Mr. K. G. Slinn
Professor J. Small

Annex

Mr. P. Smith
Mr. J. D. Stewart jointly with Mr. M. B. Watson and Mr. D. Edwards
Professor W. A. C. Stewart
Mr. H. Stott
Mr. D. G. Stygall
Sir Gordon Sutherland
Mr. J. D. R. Thomas
Mr. A. P. Tipler
Mr. J. M. Todd
Mr. T. E. A. Verity
Dr. A. C. Walshaw
Dr. H. V. Walters
Dr. J. W. Warren
Mr. P. Wegner
Dr. J. S. Wignall and Miss P. G. Dunsmuir
Mrs. P. Willmott and Miss H. Curtis
Mrs. E. J. Wilson Miller
Dr. H. D. Wing

THE SCOPE OF THE INQUIRY

Note on the terms of reference

(issued to invited witnesses and those who volunteered to submit evidence)

Higher education

The Committee have been specifically asked to cover universities, colleges of advanced technology and teacher training colleges (central institutions and colleges of education in Scotland). Their inquiries will, however, range wider than this. They will be concerned with other advanced work, for example, in technical education. Moreover, while it is unlikely they will wish to deal with them in detail, they consider it necessary to take cognisance of other forms of education and training provided for people over 18. They also intend to bear in mind the implications which any changes in higher education might have on education at earlier stages.

Full-time education

2. Part-time classes and correspondence courses are outside the terms of reference. On the other hand, they offer the possibility of higher education to those who have missed it in earlier life, and are still important for those wishing to qualify in many professions and vocations. The scope of part-time education is, moreover, changing at the present time and the Committee will wish to form a view on the proper balance between full-time and part-time study in the future.

Long-term development

3. The Committee are required to advise on the pattern for long-term development and are, therefore, concerned with current problems only in so far as they bear upon the future. Their terms of reference do not cover short-term difficulties which may be overcome in the next few years.

HEADS OF THE INQUIRY

Appraisal of the present system of higher education

4. The Committee will themselves be collecting information about the present structure of higher education in this country and overseas. (For your information an indication of the main heads of the enquiries being made about each type of institution is given in the Appendix.) They will be glad to receive evidence on the working of the present system. The principal questions which they wish to consider are:

- (i) How adequate are the opportunities for potentially qualified students? This requires an assessment on stated assumptions of the numbers of eligible students and of the number who wish to attend courses.
- (ii) Having regard, on the one hand to the importance of research, particularly in scientific and technological subjects, for the national economy, and on the other to the teaching function of the institutions concerned, is the present balance between teaching and research satisfactory?
- (iii) Are present courses suitable for those who attend them? Possible examples of the questions which arise here are: What level of wastage for courses is acceptable? Is the university honours course unsuitable for some of the students attending? What is the future of the Scottish ordinary degree? What should be the division of functions between first degrees and postgraduate courses of instruction and/or research? What is the desirable and practicable length of the various courses? Does the content of advanced courses in technical colleges match present needs? Should the training college course be related to the university degree course and should the professional training continue to be provided concurrently with the academic element of the course?

[N.B. The Committee propose dealing with such points as length of courses in general terms, if at all. They do not contemplate making recommendations about the detail of individual disciplines.]

- (iv) Should the distribution of functions between the schools and higher education be differently organised? How do the selection procedures and present content of courses in higher education affect the curricula or the organisation and atmosphere of the schools?

Addendum to Annex

- (v) What are the claims of a liberal education in relation to professional requirements and the needs of employers? How is the trend for more people to stay at school and take part in higher education affecting recruitment policies? Are there advantages for different occupations in recruitment at 21 or later as against 18 or earlier?
 - (vi) What are the implications for higher education of the increased activity of private foundations? What are the merits and defects of present arrangements for co-operation with industry, both in universities and in other institutions? Should students be associated with individual firms during their education? What are the implications of industrial recruitment policy for graduates? What are the implications of the present financial and other relations between industry and the institutions themselves?
 - (vii) Are there special difficulties impeding the higher education of women and is full use made of this potential supply of students and their possible contribution to the stock of highly qualified people?
 - (viii) Are there sufficient opportunities for the re-education and retraining of older people, whether or not they have enjoyed higher education previously?
 - (ix) What are the advantages of residential facilities for various types of course?
 - (x) Do institutions offer adequate opportunities for providing higher education for overseas students? Is the present proportion of such students too high or too low?
 - (xi) How does the prestige and influence of particular institutions affect the general pattern of higher education? What is the usefulness of external awards and other forms of external supervision by institutions?
- [N.B. *The Committee does not intend to deal with questions that affect only one institution.*]
- (xii) Is there reasonable freedom for institutions in academic and other matters of policy? Is there reasonable machinery for co-ordinating the policy of different institutions and for forward planning? What would be the effect of any changes on academic freedom and local initiative?

Future needs

5. The Committee will make recommendations in the light of their findings on such points as are set out above, and in the light of the evidence received on any changes in the system which are thought to be necessary. They will also have to consider whether an assessment can be made of the future supply of students. They will wish to consider what system of higher education is most likely to satisfy the future needs of the country for highly trained and educated people. They will be concerned with the economic, political, cultural, scientific and social consequences of any given level or pattern of higher education.

6. The Committee realise that the specific shortages of trained and highly educated people which occur from time to time may be of only temporary importance and that the most critical needs of the future may be unknown today. They may, therefore, wish to deal with the question of future needs in general terms. Nevertheless, provided that the assumptions are stated for any projections which are made, they would be grateful to see estimates of the likely demand for such people in particular sectors or occupations.

7. The Committee will also wish to consider the need for and relative merits of:—

- (i) expansion of existing institutions;
- (ii) modification of existing institutions;
- (iii) creation of additional institutions;
- (iv) creation of new types of institutions;
- (v) reallocation of functions between existing institutions or institutions still to be created?

8. Some of the topics for discussion under this head are :

What should be the future status of colleges of advanced technology in relation to universities and technical colleges? In what institutions should teacher training be provided and in what form of course? Should the present training colleges provide some courses for those who do not intend to take up teaching? Is there an optimum size of institution? Should all institutions provide for a wide range of disciplines? What should be the machinery for co-ordinating the work of the various types of institution? What should be their relations with government?

APPENDIX

The present structure of higher education

9. The main heads of the Committee's enquiries will cover, for each type of institution :

The form of government, including financial and other relations with central and local government, with non-statutory bodies and with industry :

Internal self-government, qualifications and conditions of service of the staff :

The numbers, ages, country of origin and sex of students :

Admission policies :

Length of courses, content of courses, nature of final examinations and qualifications awarded :

Number of students qualifying :

The amount and nature of research activity and its relation to that in other educational establishments and elsewhere :

Physical conditions, e.g. buildings available and the extent of residence :

The machinery of central and local government for co-ordinating the various forms of activity.

GLOSSARY

This glossary explains the following terms which are used frequently in the Report and the Appendices. (Chapters III and IV describe the present structure of higher education and detailed references to these and other chapters will be found in the Index.)

<i>Term</i>	<i>Reference</i>	<i>Term</i>	<i>Reference</i>
Adult education ...	... 1.5, 2.5	Larger civic universities ...	7.4
Advanced courses ...	... 2.3	Levels of post-school education	2.1-6
Age group ...	... 7.1	Managerial and other profes-	
Agriculture ...	... 4.8	sional occupations ...	6.4
Application rate ...	... 5.4	Manual occupations ...	6.2
Applied science ...	... 4.2	Master's degrees ...	2.1
Arts ...	... 4.2	Medical subjects ...	4.9
		Methods of study ...	3.1-3
Block release courses ...	... 3.2		
Category I ...	... 2.3	Non-manual occupations ...	6.2
Certificate of Education ...	... 2.1	Overseas students ...	7.2
Civic universities ...	... 7.4		
Clerical occupations ...	... 6.5	Part-time courses ...	3.2
Clinical medicine ...	... 4.9	Part-time day courses ...	3.2
Colleges of Education ...	... 1.2	Ph.D. ...	2.1
Continuous courses ...	... 3.1	Postgraduates ...	2.1
		Practical subjects ...	4.10
Degree of competition ...	... 5.4	Pre-clinical medicine ...	4.9
Degree level courses ...	... 2.3	Private study ...	1.4, 2.4, 3.3
Education ...	... 4.4	Professional and managerial	
Entry rate ...	... 5.3	occupations ...	6.2
Entry ratio ...	... 5.5	Professional qualifications ...	1.4, 2.4
Evening courses ...	... 3.2		
Extra-Mural Department ...	... 1.5	Qualified school leavers ...	5.1
First degrees ...	... 2.1	Sandwich courses ...	3.1
First diplomas ...	... 2.1	Science ...	4.6
Full-time courses ...	... 3.1	Scottish Certificate of Educa-	
Further education ...	... 1.3, 2.3	tion ...	5.2
		Scottish Leaving Certificate ...	5.2
General Certificate of Educa-		Sectors of post-school educa-	
tion ...	... 5.2	tion ...	1.1-6
Graduate ...	... 2.1	Semi- and un-skilled occupa-	
Graduate-equivalent ...	... 2.3	tions ...	6.7
		Skilled manual occupations ...	6.6
Higher degrees ...	... 2.1	Smaller civic universities ...	7.4
Higher diplomas ...	... 2.1	Social class ...	6.1-8
Higher education ...	... 2.1-6	Social studies ...	4.5
Higher professional occupa-		Standards of selection ...	5.4
tions ...	... 6.3	Student/staff ratio ...	7.3
Home students ...	... 7.2	Subjects of study ...	4.1-10
Humanities ...	... 4.3		

Term	Reference	Term	Reference
Teacher's Certificate ...	... 2.2	University ...	... 1.1, 2.1
Teacher training ...	... 1.2, 2.2	University graduate ...	... 2.1
Technology ...	... 4.7	University teachers ...	... 7.3
Training Colleges ...	... 1.2		
Undergraduates ...	... 2.1	Workers' Educational Association ...	... 1.5
Universities Preliminary Examination ...	... 5.2		

DEFINITIONS

1 Sectors of post-school education

- 1.1** *Universities* are defined for statistical purposes as institutions in receipt of Treasury grant. In Chapter XI and later chapters of the Report the term is used to cover Colleges of Advanced Technology and other institutions that in future are given the status of universities or technological universities.
- 1.2** *Teacher training* is used collectively to include the *Training Colleges* in England and Wales (in future to be known as *Colleges of Education*) and the *Colleges of Education* in Scotland. It excludes University Departments of Education and the central activity of University Institutes (or Schools) of Education. It includes general, specialist and Technical Training Colleges but excludes Art Training Centres.
- 1.3** *Further education* comprises all other institutions providing post-school education (other than adult education—*q.v.*) within the sphere of responsibility of the Minister of Education or the Secretary of State for Scotland. In England and Wales this includes, in addition to the institutions discussed in Chapter IV *Farm Institutes* (agricultural institutes). It excludes the *Agricultural Colleges* in England and Wales.
- 1.4** *Private study* is used to cover all students taking courses leading to *professional qualifications* other than in universities, teacher training or further education i.e. those studying by correspondence course or by private study (whether or not they also attend classes organised by professional associations). It also includes all other students taking correspondence courses or working unaided (e.g. for degrees).
- 1.5** *Adult education* is used to cover the residential colleges of adult education (which receive direct grant from central government) and courses of a mainly non-vocational character provided, either separately or in conjunction, by the *Extra-Mural Departments* of universities, the *Workers' Educational Association* and other voluntary bodies, and by local education authorities (generally in *Evening Institutes*). Most of the courses do not lead to a qualification and most are part-time. But there are also a number of short residential courses (as well as the full-time courses of a year or more offered by the residential colleges).
- 1.6** Other post-school education and training is provided by independent institutions (e.g. theological colleges, secretarial colleges, the Architectural Association School, The Royal Academy Schools of Art); by institutions grant-aided by other departments (e.g. Colleges of Music receiving Treasury grant and *Agricultural Colleges* aided by the Ministry of Agriculture, Fisheries and Food); by institutions maintained by the Service Departments; or within the sphere of the Health Services (e.g. nursing training, physiotherapy).

2 Levels of post-school education

- 2.1** *University* students are divided into undergraduates and postgraduates. *Undergraduates* are those reading for *first degrees* and *first diplomas*. A university student obtaining a first degree is called a *university graduate*. All students

Glossary

obtaining first degrees (whether in universities or elsewhere) are called *graduates*. *Postgraduates* are defined as those taking courses for which a first degree or approximately equivalent qualification is a condition of entry (excluding 'occasional' students). Most postgraduates are studying either for *higher degrees* (excluding those not obtained by examination), *higher diplomas* or the postgraduate *Certificate of Education* (the qualification following a general course of teacher training). Higher degrees are divided into *Ph.D.s* (taken to include all which are at Doctoral level) and *Master's degrees* (all other higher degrees). All the university students described above are classified as in *higher education*. They exclude 'occasional' students and those classified in the University Grants Committee Returns as taking courses 'not of a university standard'.

- 2.2 Students in *teacher training* work for *Teachers Certificates* and are classified as in *higher education*.
- 2.3 Students in *further education* may be engaged on *advanced* courses or non-advanced courses or on courses not leading to any recognised qualification. Only advanced courses are classified as *higher education*. In England and Wales, they are defined as those above the standard required for the Advanced level of the General Certificate of Education or the Ordinary National Certificate. A detailed list of such courses may be found in Appendix One (Part I, Section 2 and Annex D). In Scotland, advanced courses are those above the standard required for the Higher grade of the Scottish Certificate of Education; advanced students being subdivided into *Category I* (which excludes most students taking the first year of advanced courses) and others. In Great Britain as a whole, advanced courses can be divided into those that are of *degree level* and others. The former lead to qualifications which in the teaching profession may be regarded for salary purposes as equivalent to degrees (see Appendix One, Part I, Section 2 and Annex D). Students who successfully complete degree level courses are of *graduate-equivalent* status. (Degree level courses include degree courses offered in further education.)
- 2.4 *Private study* may involve courses which are either *higher education* (advanced courses of degree level or below) or are non-advanced. The same classification is used in private study as in further education.
- 2.5 *Adult education* is not for statistical purposes classified as higher education.
- 2.6 Other post-school education, like private study, is divided between *higher education* (advanced courses of *degree level* or below) and other. Training for nursing and for other occupations associated with medicine, as well as secretarial training is not classified as of the level of higher education.

3 Methods of study

- 3.1 *Full-time* courses are those involving full-time study through the week. In universities and Training Colleges, full-time students exclude those whose courses last less than an academic year, who are classified as part-time. In further education in England and Wales all students are included who, on the particular day of the year to which the returns relate, were taking full-time courses of whatever length. Full-time courses are divided into *continuous* courses and *sandwich* courses, in which the period of full-time study in college is broken by a period (or periods) of industrial training forming an integral part of the course.
- 3.2 *Part-time* courses are divided into *part-time day* courses (which may or may not involve further attendance during the evening) and those which take place during the evening only, referred to as *evening* courses. Students who are released by their firms to take a series of short periods of full-time study, averaging 18 weeks a year or less, as an alternative to or in addition to release for one or two days a week, are counted not as sandwich course students but as part-time day students. Their courses are known as *block release*.

- 3.3 *Private study* is used to cover all students taking correspondence courses or working unaided (See 1.4).

4 Subjects of study

- 4.1 The basic subject divisions that have been used are:

Humanities
Education
Social studies
Science
Technology
Agriculture
Medical subjects
Practical subjects
Other subjects

- 4.2 Definitions of these categories are shown below. In their returns to the University Grants Committee, universities do not always classify the same subject in the same way. The chief instances are mentioned in the definitions below. In some cases certain of the categories have been combined as follows:

Arts comprises humanities, Education and social studies.

Applied science comprises technology and agriculture.

- 4.3 *Humanities* include philosophy, languages and literature, history and geography. In Scotland, many arts students take courses embracing both the humanities and social studies; they are classified in humanities.
- 4.4 *Education* comprises courses leading to the postgraduate Certificate of Education and other more specialised courses of instruction or research. When used to describe one part of the course in Training Colleges it refers to the study of subjects such as the philosophy, history and psychology of education.
- 4.5 *Social studies* include economics, statistics, commerce, politics, sociology, anthropology, law and psychology, though the latter is by some universities included under humanities and by others under science. Where Education is not shown separately it is included in social studies.
- 4.6 *Science* includes physics, chemistry, biology, geology and mathematics, though the latter is included by some universities under humanities.
- 4.7 *Technology* includes engineering, mining, metallurgy and, in universities, architecture. In further education it also includes, as in the Ministry of Education's statistics, building, pharmacy, surveying and textile technology.
- 4.8 *Agriculture* includes, besides agriculture, forestry.
- 4.9 *Medical subjects* include medicine, dentistry and veterinary science. *Pre-clinical medicine* is used to cover the pre-clinical study of all medical subjects and *clinical medicine* the clinical study of all medical subjects.
- 4.10 *Practical subjects* include physical education, domestic science, handicraft, art, music, and drama. Where these are not shown separately they are included with 'Other subjects'.

5 Qualified school leavers and entry rates

- 5.1 The term *qualified school leavers* refers to the numbers obtaining each level of school-leaving qualification (for example, 2 'A' level passes in the General Certificate of Education, 1 'A' level pass, 5 or more 'O' level passes but no 'A' level passes) that at present satisfy entry requirements for each form of higher education. The term includes those who obtain their qualifications after leaving school.
- 5.2 In England and Wales the *General Certificate of Education* may be taken either at school or after leaving. In Scotland the present *Scottish Certificate of Education* can also be taken after leaving school. But the *Scottish Leaving Certificate*, which it replaced in 1962, could only be taken at school: a similar examination, the *Universities Preliminary Examination* could be taken after

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leaving. All references to passes obtained in the Scottish Leaving Certificate include those obtained in the Universities Preliminary Examination except where the contrary is indicated.

- 5.3 The *entry rates* to higher education are the proportions of 'school leavers' with each level of qualification who enter.
- 5.4 A particular entry rate is equal to the *application rate* (the proportion of qualified school leavers who apply) multiplied by the *degree of competition* (the proportion of qualified applicants who are admitted). The stiffer the degree of competition the higher are the *standards of selection*. There is a different entry rate for 'school leavers' with each level of qualification. But for convenience the entry rates are sometimes referred to collectively as the entry rate, and the proportions of qualified school leavers who enter are also referred to in the singular.
- 5.5 Where data on the qualifications of entrants have not been available, it has sometimes been necessary to refer to an *entry ratio* i.e. the ratio between entrants and 'school leavers' with one particular level of qualification.

6 Social class

- 6.1 The classification of father's occupation used in all our surveys is based on the Registrar General's classification of Social Class (see Classification of Occupations, H.M.S.O., 1960) as follows:

Survey classification					R.G.'s Social Class
Higher professional	...	...	...	...	I
Managerial and other professional	...	...	...	...	II
Clerical	...	...	...	...	III Non-manual
Skilled manual	...	...	...	...	III Manual
Semi- and un-skilled	...	...	...	...	IV and V

- 6.2 The definitions of these categories are set out below. In some cases certain of the categories have been combined as follows:
Professional and managerial comprises the first two groups
Non-manual comprises the first three groups
Manual comprises the last two groups.
- 6.3 *Higher professional* (R.G.'s Class I) includes such persons as lawyers, doctors, engineers, accountants and university teachers.
- 6.4 *Managerial and other professional* (R.G.'s Class II) consists mainly of administrators, higher executives, business proprietors (including shopkeepers), school teachers and technicians.
- 6.5 *Clerical* (R.G.'s Class III Non-manual) includes all office workers not included above, together with certain others such as shop assistants.
- 6.6 *Skilled manual* (R.G.'s Class III Manual) includes mainly manual workers whose occupations have a period of training or apprenticeship.
- 6.7 *Semi- or un-skilled* (R.G.'s Classes IV and V) includes those in all other occupations, a few of whom are in non-manual occupations.
- 6.8 There are three other surveys quoted in the Report or Appendices in which slightly different classifications are used. The *Statistics of Education*, 1961, *Supplement to Part 2* and *Early Leaving*, Report of the Central Advisory Council for Education (England) (1954), differed most noticeably from the above classification in that shop assistants (classified in Group III Non-manual by the Registrar General) were classified with skilled workers. *15 to 18*, Report of the Central Advisory Council for Education (England) (The Crowther Report) (1959), used another slightly different classification, more closely resembling the Registrar General's classification set out above.

7 Other terms

- 7.1 The concept of *the age group* is best illustrated by reference to those entering higher education. The entrants in any year are of various ages. Those of each age entering are expressed as a percentage of their own age group, and these separate percentages are then summed. This gives a percentage of a composite age group, suitably weighted to allow for the numbers of each age entering and the size of the age groups from which they come. Where the data did not permit this type of calculation, an approximation has been used: all entrants have been expressed as a percentage of the single age group from which the largest number of entrants was thought to be drawn. For a further discussion of this see Appendix One, Annex B.
- 7.2 *Home students* are those ordinarily resident in the United Kingdom apart from their period as students. Other students are *overseas students*.
- 7.3 The *student/staff ratio* is used to refer to the total number of students divided by the total number of teachers. *University teachers* are taken to comprise all full-time academic staff paid directly from university funds together with those at Oxford and Cambridge who are paid directly by the colleges.
- 7.4 English universities other than Oxford, Cambridge and London have been called *civic universities*. These have been divided into *larger civic* (those separate universities shown in Table 9 with more than 2,000 students) and *smaller civic* (the remainder). For the purpose of the University Teachers' Survey, however, Southampton was classified with the larger civic universities.

TECHNICAL NOTE

ROUNDING

In tables in the Report, the total figures have been rounded first, and the other figures rounded, with the minimum necessary adjustments, to add up to the rounded totals.

In tables in the Appendices, each figure has been rounded individually. In some cases, therefore, the rounded figures in a column or row do not add to the rounded total.

SOURCES

In the Appendices, much of the material is drawn from the surveys described in the Annex. The abbreviations used in referring to these surveys are shown in the table on page 299. In addition, much material has been drawn from official sources, both published and unpublished. These have been referred to by the following abbreviations:

U.G.C.	...	...	...	University Grants Committee (unpublished data).
Min. of Ed.	...	...	...	Ministry of Education (unpublished data).
S.E.D.	...	...	...	Scottish Education Department (unpublished data).
U.G.C. Returns	...	...	...	University Grants Committee, <i>Returns from Universities and University Colleges in receipt of Treasury Grant</i> (published annually).
Stats. Educ.	...	...	...	Ministry of Education, <i>Statistics of Education</i> (published annually).
Educ. in Scotland	...	...	...	Scottish Education Department, <i>Education in Scotland</i> (published annually).

The University Grants Committee's published statistics contain two main sections: a series of large numbered tables and, preceding them, a section of comparative statistics consisting mainly of unnumbered tables. References to tables in the U.G.C. Returns are to the large numbered tables; references to the comparative statistics are simply given as 'U.G.C. Returns, Summary statistics'.

The Statistics of Education for 1961 were published in three volumes: Part 1, Part 2 and the Supplement to Part 2. The last volume is abbreviated to 'Stats. Educ. Suppl.' In 1960 and earlier the Statistics of Education were not published separately, but as part of the Ministry's annual reports entitled 'Education in 1960' and so forth. In historical tables, sources for before, as well as after 1960 are referred to collectively as Stats. Educ.

Technical note

For tables derived from a single publication, the year to which the publication relates is quoted in the source. When an historical table is derived from a series of comparable tables published annually, the table number shown is that of the relevant table in the latest available issue. At the time of going to press the latest issues available were:

U.G.C. Returns	...	...	1961/2
Stats. Educ.	...	...	1962
Educ. in Scotland	...	...	1962

These publications provide data relating to the following academic years:

Teachers: All sectors	1961/2
Students: Universities	1961/2
Teacher training	1962/3
Further education	
England and Wales	1962/3
Scotland	1961/2

Detailed analyses that are based on routine statistics relate to these years. All survey analyses relate to 1961/2.

Where comprehensive data for 1962/3 were not available, provisional aggregates have been estimated on the basis of preliminary routine returns. All 1962/3 data relating to teachers to students in universities and to students in Scottish further education are of this character.

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